Inland Homes Ltd

HILLINGDON GARDENS

Transport Assessment

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Transport Assessment

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1 INTRODUCTION

1.1 COMMISSION

1.1.1. WSP has been commissioned by Inland Homes Ltd to produce this Transport Assessment in support of the proposed development at the Former Master Brewer Motel site, Freezeland Way, Hillingdon UB10 9PQ, located in the London Borough of Hillingdon. This document has been produced in accordance with TfL's Healthy Streets Transport Assessment guidance (February 2019).

1.1.2. The site is located on Freezeland Way, to the northeast of Hillingdon Circus junction, as shown in **Figure 1-1**. The site comprises 2.53 hectares of land and is currently a vacant brownfield site that was formerly occupied by the Master Brewer Motel and Public House, as well as associated buildings.

Figure 1-1: Site location

1.2 PLANNING BACKGROUND

1.2.1. The site was the subject of four planning applications in 2004, 2005, 2012 and 2014 primarily relating to retail food store led development with a number of other uses. The two former applications being made by Tesco and the two latter by Spenhill Regeneration Limited. The summary of the planning application history of the site is provided below:

- 2004 – outline application – submitted for the redevelopment of the site to provide a comprehensive mixed use scheme comprising class A1 food store (8,819m²), 4 retail units (805m²) and retail parking for 538 vehicles, plus 220 residential units including affordable housing and parking for 230 vehicles, highway alterations to Long Lane and Freezeland Way including new access to the site off Freezeland Way (involving demolition of the Master Brewer Motel). The application was refused on 23 December 2004.
- 2005 – duplicate applications in outline form were submitted for the erection of a Tesco superstore (7,673 m²), 1,244m² of additional space for A1, A2, A3, A4 or D1 uses within the Use Classes Order, car parking for 409 cars, 205 residential apartments, including affordable housing, together with 205 car parking spaces, highway alterations and landscaping and the demolition of the Master Brewer Hotel. The application was refused on 14/6/2006.
- 2012 – full and outline planning applications involving "Mixed use redevelopment of the former Master Brewer Site comprising the erection of a foodstore, measuring 3543 sq.m (GIA) (use class A1), with 181 car parking spaces and 32 cycle spaces; anadditional 3 retail units, measuring 1037 sq.m (GIA), (use class A1 to A5); a safer neighbourhoods unit, measuring 100 sq.m (GIA) (use class D1); an 84 bed hotel (use class C1) and 18 car parking spaces and 16 cycle spaces; 125 residential units (use class C3) with 99 car parking spaces and 150 cycle parking spaces and associated highways alterations together with landscape improvements". This application was refused on 2 December 2013.
- 2014 – full and outline planning applications involving "mixed use redevelopment of the former Master Brewer Hotel comprising the erection of a foodstore, measuring 3,543 sq m (GIA) (use class A1), with 179 car parking spaces and 32 cycle spaces; an additional 3 retail units, measuring 1,037 sq m (GIA), (use class A1 to A5); an 70 bed hotel (use class C1) and 19 car parking spaces and 4 cycle spaces; 125 residential units (use class C3) with 100 car parking spaces and 138 cycle parking spaces and associated highways alterations together with landscape improvements". The application achieved resolution to grant planning permissions (subject to s106 agreement) on 27 August 2014. Application subsequently marked as 'No Further Action'.

1.2.2. A planning application was submitted by Meyer Homes in August 2017 related to the '*construction of a residential-led, mixed use development comprising buildings between 4 and 9 storeys to provide 377 residential units (Use Class C3); employment floor space (Use Classes B1(a-c)); flexible commercial floorspace (Use Classes A1/A3); associated car and cycle parking, hard and soft landscaping, plant and other associated ancillary development*.' 245 residential car parking spaces were provided at a ratio of 0.65 spaces per dwelling.

1.2.3. The 2017 planning application was accompanied by a Transport Assessment report, prepared by WSP UK Ltd, which considered the transport implications of the scheme and set out proposed mitigation measures. This was subsequently reviewed and accepted in principle by Transport for London (TfL) following an extensive traffic modelling exercise.

1.2.4. A further planning application submitted by Meyer Homes in November 2018 was for 437 residential dwellings together with four commercial units and two retail units. In addition, 219 residential car parking spaces (at a ratio of 0.5 spaces per dwelling), 5 commercial / visitor parking spaces and 4 car club parking spaces were to be provided, together with 779 long-stay residential cycle parking spaces. This application was refused in Summer 2019.

1.3 PROPOSALS SUMMARY

1.3.1. The principles of the forthcoming application will remain aligned with the previous scheme iteration, though the proposals seek to intensify development on the site and will comprise 514 residential dwellings together with a small offering of commercial / retail space. A public square will form a gateway into the site, with the design principles focusing on enhancing sustainability and promoting healthy lifestyles. In line with this strategy, it is proposed to deliver residential car parking at a reduced ratio of 0.3 spaces per dwelling, with a car-club offering and a small number of spaces for visitor parking. This will be supported by a wide-ranging and ambitious suite of sustainable travel measures, as set out in the accompanying Travel Plan. Cycle parking is to be provided in line with draft New London Plan standards.

1.3.2. The proposed development description is as follows:

"Construction of a residential-led, mixed-use development comprising buildings of between 2 and 11 storeys containing 514 units (Use Class C3); flexible commercial units (Use Class B1/A1/A3/D1); associated car (164 spaces) and cycle parking spaces; refuse and bicycle stores; hard and soft landscaping including a new central space, greenspaces, new pedestrian links; biodiversity enhancement; associated highways infrastructure; plant; and other associated ancillary development".

1.3.3. A more detailed breakdown of the development proposals is detailed in **Table 1-1**.

Table 1-1: Proposed development schedule

Land Use	Relevant development quantum
Residential (C3)	514 units
Flexible retail (A1-A3) / community space (D1) / office (B1)	1,141m^2 (GEA)

1.3.4. A detailed breakdown of the car parking provision associated with each land use is outlined in **Table 1-2**.

1.3.5. The dwellings will comprise of 1, 2 and 3-bedroom flats and duplexes in 12 blocks ranging from 4 to 11 storeys high.

1.3.6. The development is in support of London-wide planning policies to promote the construction of new residential units on brownfield sites across the city.

Table 1-2: Proposed car parking provision

Land Use	Relevant development quantum	Parking provision
Residential (one bed)	221 units	-
Residential (two bed)	216 units	77
Residential (three bed)	77 units	77
Residential sub-total	***514 units***	***154 spaces***
Visitor / commercial	-	6
Car club	-	4
Total		**164 spaces**

1.4 PRE-APPLICATION CONSULTATION

1.4.1. A Transport Assessment Scoping Report was issued to TfL and LBH as part of the wider pre-application process, issued on 3rd July 2019. A pre-application meeting was held with TfL on 8th July 2019 and with LBH on 12th August 2019. Following queries from TfL relating to the trip generation exercise, a further trip generation technical note was issued on 19th July 2019. TfL confirmed they were satisfied with this revised exercise as part of their pre-application response letter, sent on 22nd July 2019. This is included at **Appendix A**.

1.4.2. As part of the pre-application process, TfL asked that further traffic surveys were undertaken to determine whether the background traffic situation had changed since the 2017 modelling assessment had taken place. A Transport Assessment Addendum (included at **Appendix B**) was submitted to TfL on 25th November 2019 which demonstrated that the 2017 highway modelling was still valid, and this was confirmed as acceptable by TfL within the wider Greater London Authority (GLA) response received on 3rd December 2019. Following the GLA call-in, a further meeting took place with TfL on 1st June 2020 to discuss and resolve any outstanding items.

1.4.3. A public consultation was held and attended by WSP Transport on 25th July 2019, during which further feedback on the development proposals was received from local residents and stakeholders.

1.5 REPORT PURPOSE

1.5.1. This Transport Assessment has been prepared to accompany the planning application and considers the accessibility of the site in the context of the surrounding transport infrastructure for trips made by all relevant transport modes, examines the forecast generation of trips by these modes, assesses the impact of the development proposals on the surrounding transport infrastructure and highlights the sustainable transport strategy for the scheme.

1.5.2. The following documents should be read in conjunction with this Transport Assessment:

- Residential Travel Plan (included at **Appendix C**)
- Delivery and Servicing Plan (included at **Appendix D**)
- Car Parking Management Plan (included at **Appendix E**)

1.6 POLICY COMPLIANCE

1.6.1. This Transport Assessment (TA) has been produced in accordance with the 'Healthy Streets TA' (2019) guidance produced by Transport for London (TfL), with reference also made to 'Guidance on Transport Assessments' (2007) document produced by the Department for Transport (DfT).

Healthy Streets

1.6.2. The Healthy Streets approach forms the core theme of the draft New London Plan and Mayor Transport Strategy. Healthy Streets for London (2018) demonstrates the health benefits of more inclusive and healthier street environments which are aimed to encourage active lifestyle. Through the Healthy Streets approach and the draft New London Plan, a transport behaviour shift is advocated to reduce Londoners' dependency on the car by creating a better and healthier approach to street design, ensuring that the street is encouraging a healthy lifestyle. According to Healthy Streets, the street environment should be a pleasant and sustainable environment in which people can walk, cycle and use public transport safely.

1.6.3. 'Policy T2 Healthy Streets' outlines that development proposals should:

- Demonstrate how they will deliver improvements that support the ten Healthy Streets indicators in line with TfL guidance
- Reduce the dominance of vehicles on London's streets whether stationary or moving
- Be permeable by foot and cycle and connect to local walking and cycling networks as well as public transport

1.6.4. **Figure 1-2** details the ten Healthy Streets indicators outlined in the draft New London Plan.

Figure 1-2: Healthy Streets indicators

1.6.5. The development proposals take account of the Healthy Streets indicators and will achieve the headline policy objectives as outlined below:

- Patterns of land use that support active travel and public transport.

  The proposals are for a predominantly residential development, which is appropriate for the site's location adjacent to Hillingdon Underground Station. The development will attract residents who intend to commute into Central London, and the proximity of the London Underground network means that the use of public transport will be the most viable option for many residents at the site. There will also be a retail and flexible commercial offering together with areas of community space, enabling the site to be self-contained and reducing the need for travel. The proposed footpath connections towards the Hillingdon Trail and improvements to the pedestrian and cycle facilities across Hillingdon Circus and towards the cycle route to the south of Freezeland Way further unlock the local area by active modes, and encourage residents and other users of the development to travel sustainably.

- Active modes are prioritised ahead of vehicular transport.

  Car parking will be provided at a ratio of 0.3 spaces per dwelling. This ratio is in line with draft New London Plan guidance, and the low provision will attract residents who do not require a car. Long-stay and short-stay cycle facilities for each land use will be provided in line with draft

New London Plan standards, and will be easily accessible as per the principles set in the London Cycle Design Standards (LCDS). A cycle super hub will also be provided on-site with maintenance and hire facilities. The developer is also providing contributions towards the forthcoming 278 bus service.

- Active frontages, appropriate ground floor uses and natural surveillance of public spaces.

  The site has been designed to appear as an extension of the high street through Hillingdon, with the active frontage designed in keeping with the other buildings on the corners of Hillingdon Circus. The retail, commercial and community facilities are all situated at ground level at prominent locations within the site, to maximise exposure and encourage users from the surrounding area as well as residents of the site itself. The proposals will include accessibility enhancements around the Hillingdon Circus junction which will improve connectivity for pedestrians and cyclists. The proposed development will improve the quality of the retail and community offering in the local area and will ensure that the mix of uses will keep the area 'active' through the day.

Vision Zero

1.6.6. Vision Zero is a key and ambitious element of the Mayor's Transport Strategy. With Vision Zero the Mayor aims to eliminate all deaths and serious injuries on London's street network by 2041. This is an initiative being taken in major cities across the world, and within London the following elements are the cornerstones of the Vision Zero Action Plan:

- Safe speeds – encouraging speeds appropriate to the streets of a busy and populated city through the widespread introduction of new lower speed limits
- Safe streets – designing an environment that is forgiving of mistakes by transforming junctions, which see the majority of collisions, and ensuring safety is at the forefront of all design schemes
- Safe vehicles – reducing risk posed by the most dangerous vehicles by introducing a world-leading Bus Safety Standard across London's entire bus fleet and a new 'Direct Vision Standard' for Heavy Goods Vehicles
- Safe behaviours – reducing the likelihood of road users making mistakes or behaving in a way that is risky for themselves and other people through targeted enforcement, marketing campaigns, education programmes and safety training for cyclists, motorcycle and moped riders
- Post-collision response – developing systematic information sharing and learning, along with improving justice and care for the victims of traffic incidents

1.6.7. The proposed development will assist with achieving the Vision Zero target, with appropriate measures being taken to ensure the safety of all users of the site or the nearby highway network. Indeed, a stage 1 Road Safety Audit has been conducted (contained in **Appendix F**) and all identified issues have been addressed.

1.6.8. The internal site road network has been designed as a shared space, with low speed limits enforced and traffic calming measures to encourage safe behaviours, as well as giving pedestrians priority.

Mayor's Transport Strategy

1.6.9. The Mayor's Transport Strategy was produced in 2018 and incorporates both the Healthy Streets and Vision Zero approaches, aiming to achieve:

- Active, inclusive and safe travel choices
- A more efficient use of the street network
- Improvements to air quality and the environment

1.6.10. Good Growth is a key concept of the Mayor's Transport Strategy, and involves ensuring that people have travel options other than driving. Indeed, Policy 21 states that:

The Mayor, through TfL and the boroughs, and working with stakeholders, will ensure that new homes and jobs in London are delivered in line with the transport principles of Good Growth for current and future Londoners by using transport to:

a) Create high density, mixed-use places, and

b) Unlock growth potential in underdeveloped parts of the city.

1.6.11. There are seven key transport principles of Good Growth. How the proposed development achieves each of these is outlined as follows:

- Good access to public transport

  The site is adjacent to Hillingdon Underground Station, and is in close proximity to a number of bus services. Indeed, the new 278 bus service will come forward in December 2019, providing north-south connections along Long Lane past the site.

- High density, mixed-use developments

  The proposals for the site will deliver residential, retail, commercial and community uses at an appropriate density for this location.

- People choose to walk and cycle

  The site's location lends in proximity to good quality pedestrian and cycle routes makes travel by active modes appealing. The on-site cycling facilities will further encourage cycling as a viable modal choice.

- Car-free and car-lite places

  Car parking is to be provided at a ratio of 0.3 spaces per dwelling.

- Inclusive, accessible design

  Accessible cycle parking is to be provided in accordance with draft New London Plan requirements. All elements of the development will be wheelchair accessible at ground level, with lifts providing connections to all other floors.

- Carbon-free travel

  It is anticipated that a high proportion of trips to and from the proposed development will take place by sustainable modes.

- Efficient freight

  The arrival of servicing and delivery vehicles has been accounted for in the site design, and infrastructure will be provided for the commercial properties as well as each residential block. An Outline Delivery and Servicing Plan has been prepared outlining management measures.

2 TRANSPORT PLANNING FOR PEOPLE

2.1 PEOPLE FIRST

Residents

2.1.1. The main component of the proposed development is the residential element, with the units taking the form of one, two and three-bedroom flatted dwellings. This dwelling type is likely to attract new home-owners and young professionals who will typically be commuting to either central London or Uxbridge on a day-to-day basis. As such, it is envisaged that a large proportion of the trips from the development will be taken on public transport, using Hillingdon Underground Station services (situated adjacent to the site) or one of 5 bus services operating in the local area. During the week, these trips will be tidal in nature and will typically be outbound in the morning, with inbound trips in the PM peak. There will also be a number of trips during the evening associated with nearby leisure uses.

2.1.2. Based upon the site's proximity to public transport services, the size and mix of units and the target demographic, it is anticipated that demand for car usage will be low. Car parking will therefore be provided at a ratio of 0.3 spaces per dwelling and it is forecast that only a small number of trips would be made by car.

Visitors

2.1.3. Visitors to the development will either take the form of local residents using the amenities on site or residents' guests.

2.1.4. The nature of the retail and community offering provided is such that trips will already be in the locality, with Hillingdon Gardens forming an extension of the high street and complementing the retail offering already in the site's vicinity. Trips to the development will typically be taken on foot by local residents, and these trips will be taken throughout the day.

2.1.5. Guests to the residential units will typically arrive and depart in the evenings on weekdays, arriving by public transport.

Employees

2.1.6. There will be a small number of employees associated with each of the flexible retail units. Retail employees will work on a shift-pattern and, depending on the type of unit, the arrival and departure times will vary widely. The retail employees will generally be residents of the local area arriving on foot or by bicycle. No car parking is available for the retail uses.

3 PROPOSED DEVELOPMENT AND SURROUNDINGS

3.1 INTRODUCTION

3.1.1. This section describes the proposed development in the context of the existing site, and the existing and future transport networks.

3.2 BASELINE

3.2.1. The site comprises 2.53 hectares of land and is currently a vacant brown field site that was formerly occupied by the Master Brewer Motel and Public House, together with associated buildings.

3.2.2. The development is an ‘island’ site located between the A40 Western Avenue and the Hillingdon Circus junction. The site is bounded to the north and east by the A40 Western Avenue, to the south by Freezeland Way, and to the west by the A437 Long Lane.

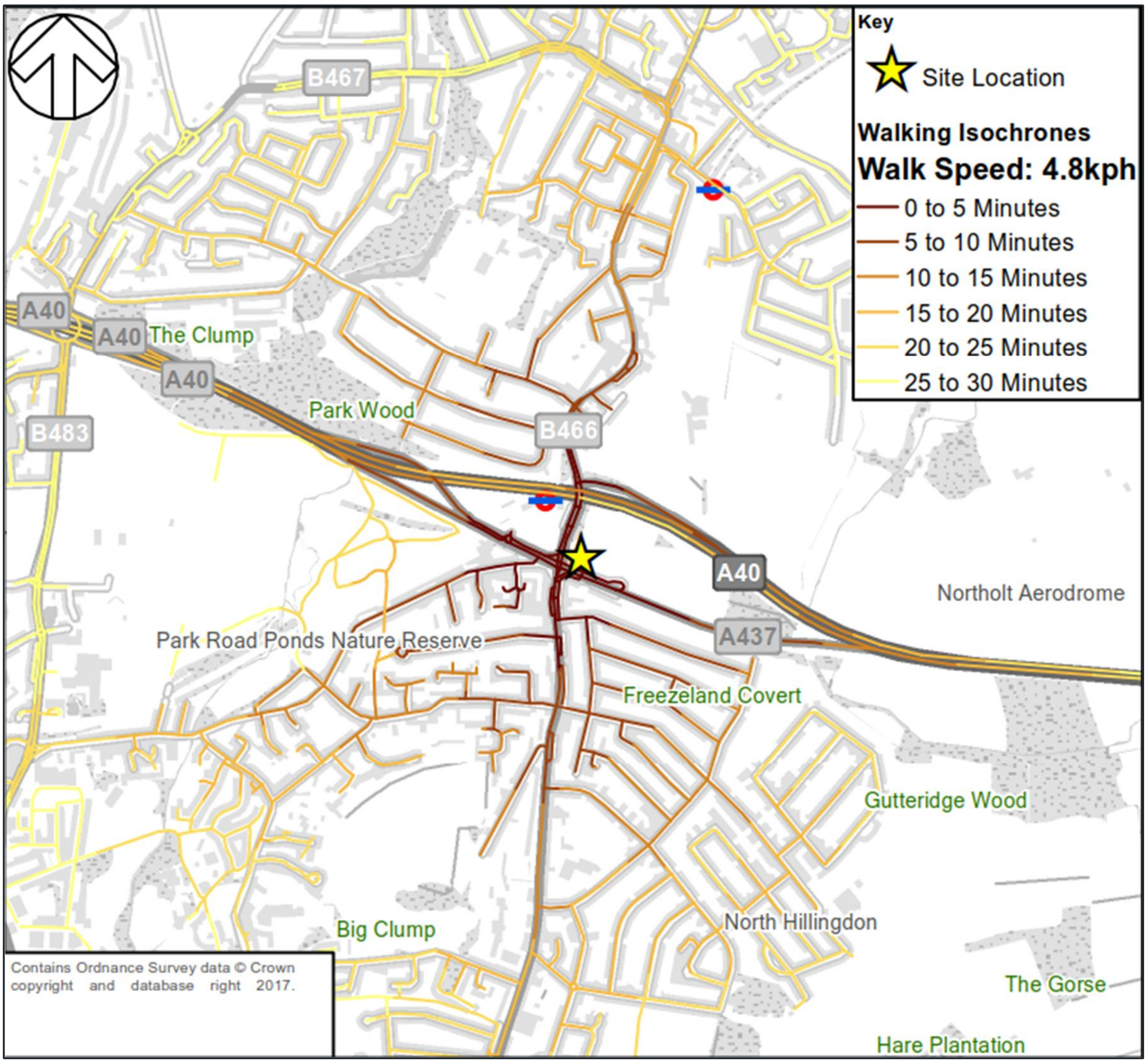
3.2.3. The application site is served by one existing vehicular access on Freezeland Way. Freezeland Way is a dual-carriageway with a break in the central reservation to provide a right-turn facility into the site. The access, approximately 50m east of Hillingdon Circus, takes the form of a priority junction, with entry to the site possible from both the west and the east; however, no right turn movements are permitted from the site onto Freezeland Way, and therefore all traffic exiting the site is required to head east initially before U-turning to access the westbound carriageway. The existing site access is shown in **Figure 3-1**.

Figure 3-1: Existing site access

3.2.4. Though the development site is surrounded by busy roads on three sides, a network of well-lit footways borders the site. These provide connections to the local amenities and facilities to the south of Hillingdon Circus as well as to Hillingdon Underground Station. All arms of Hillingdon Circus have controlled pedestrian crossing points, allowing safe movements across the junction. All pavements in proximity to the site are at least 2 metres wide and are in good condition.

3.2.5. The walking isochrones displayed in **Figure 3-2** show 0-30 minutes catchment for walking access. The isochrones assume a speed of approximately 4.8km/hr and demonstrate that the site is accessible to a large number of local facilities, amenities and an extensive public transport network. Uxbridge town centre, Ickenham and the A437 can all be reached within a 30-minute journey.

Figure 3-2: Walking isochrones

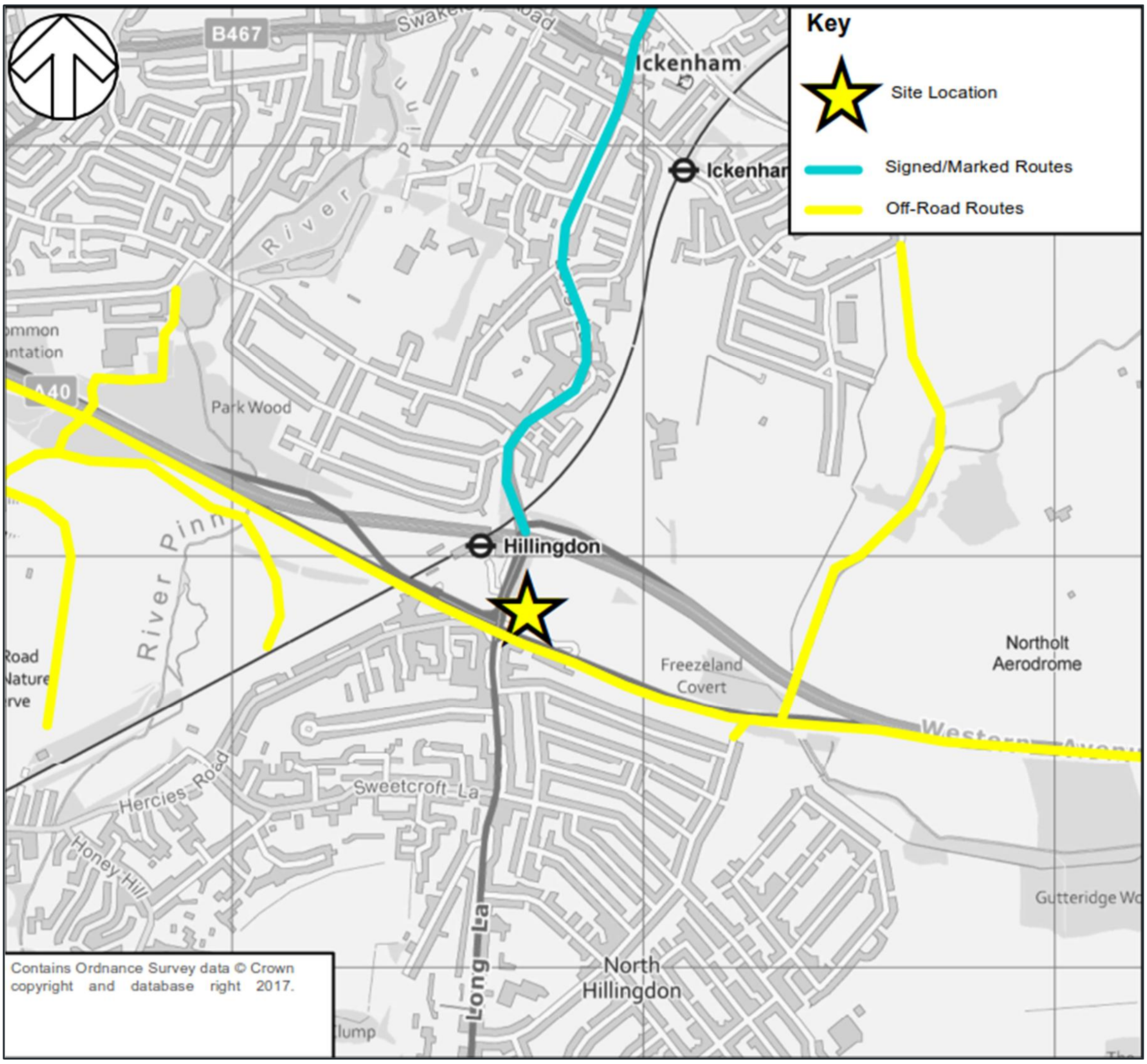


3.2.6. Though there are no London Cycle Network (LCN) routes in the direct vicinity of the site, there is a segregated cycle route that runs along the A40 Western Avenue from the Polish War Memorial Roundabout. Here the route switches carriageways, and continues east along the A40 Western Avenue until it reaches White City. At various points along this route there are opportunities to join LCN route 6 and other local routes towards destinations such as Southall, Wembley and Central London.

3.2.7. The off-road cycle route runs along the A40 westbound exit slip towards Freezeland Way, and continues past the site on to Western Avenue to the west of Hillingdon Circus. From here it connects to other local routes and trails around Hillingdon Athletics Stadium, offering the opportunity for recreational cycling.

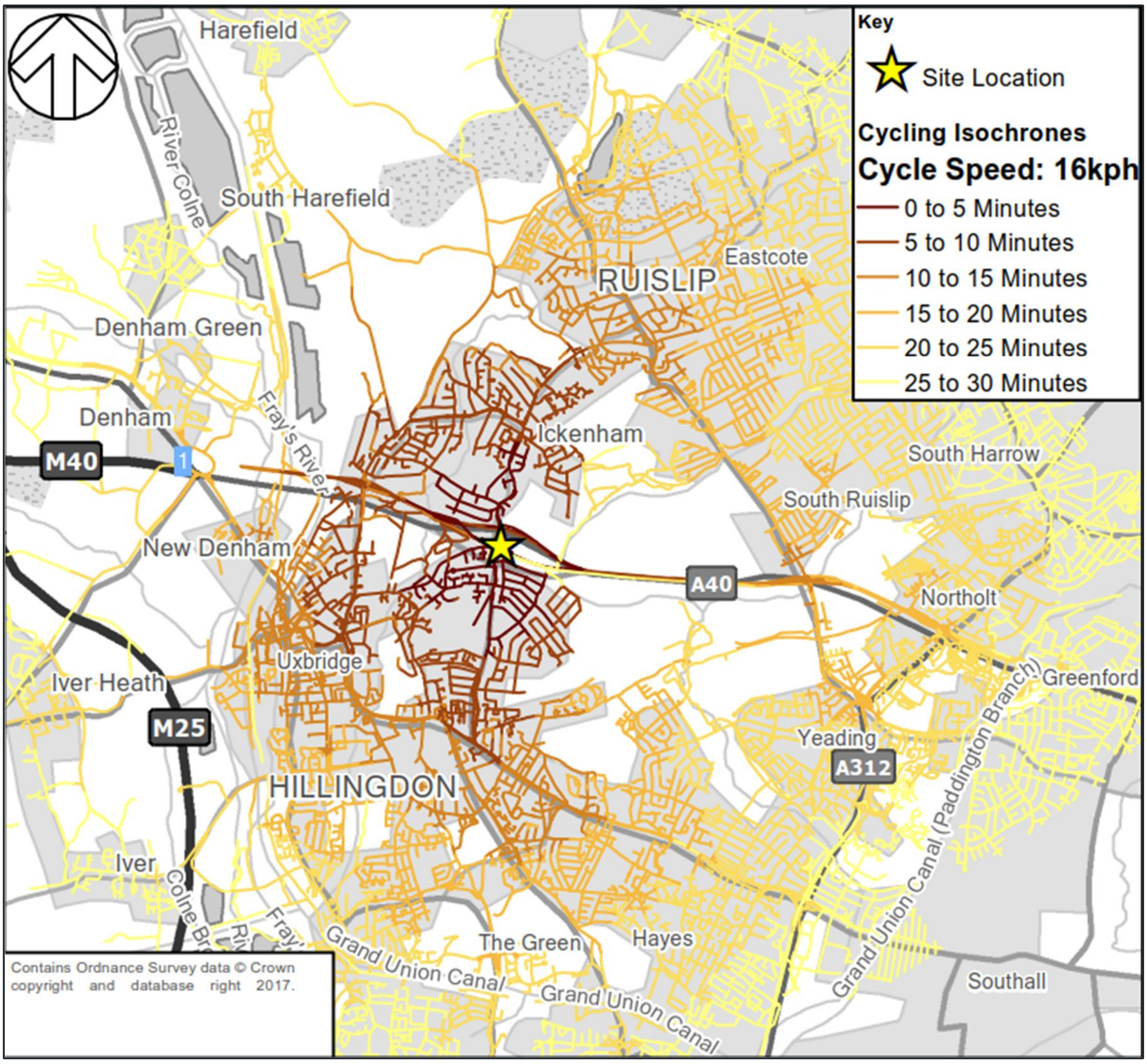
3.2.8. To the west of the site, an on-road cycle lane heads northbound along Long Lane towards Ickenham. **Figure 3-3** shows the local cycle routes in the area.

Figure 3-3: Local cycle routes



3.2.9. The cycling isochrones displayed in **Figure 3-4** show 0-30 minutes catchment for cycle access. The isochrones assume a speed of approximately 16km/hr and demonstrate that it is possible to cycle from the site to Uxbridge and Ickenham within 5-10 minutes, and various destinations around Greater London including Heathrow Airport, Ealing and Harrow within 30 minutes.

Figure 3-4: Cycling isochrones



3.2.10. The PTAL methodology has been adopted by TfL as a means by which to quantify and compare accessibility to public transport services for given sites. It takes into account the time taken to access the public transport network, including:

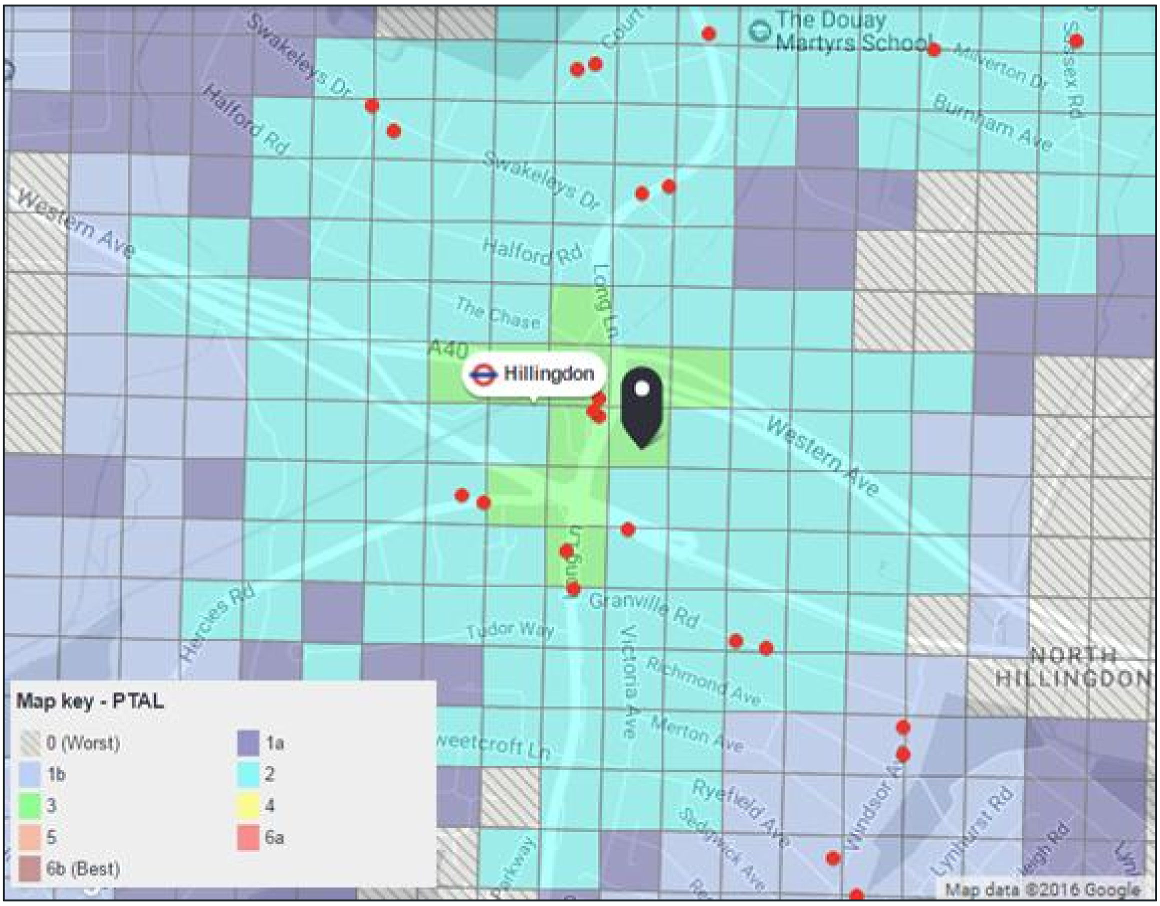
- The walk time to various public transport services.
- The average waiting time for each service.
- The reliability of each service.

3.2.11. The methodology is based on a walk speed of 4.8kph and considers railway stations within a 12 minute walk (960m) of a site and bus stops within an 8 minute walk (640m). The PTAL assessment is undertaken using the AM peak hour operating patterns of existing services.

3.2.12. An Equivalent Doorstep Frequency (EDF) is calculated for each of the public transport services accessible from the site based on the criteria described above. These individual EDF values are weighted to provide an accessibility index (AI) value for each service accessible from the site. The sum of the AIs for each mode are aggregated to provide a single measure of accessibility.

3.2.13. The PTAL score for the site is 3, as shown by **Figure 3-5**, indicating that there is a moderate level of accessibility to public transport to / from the proposed development; however, it should be recognised that the site is both immediately adjacent to Hillingdon Underground Station and close to bus stops served by local buses. In this respect, the site can be considered to be highly accessible to public transport services.

Figure 3-5: PTAL map

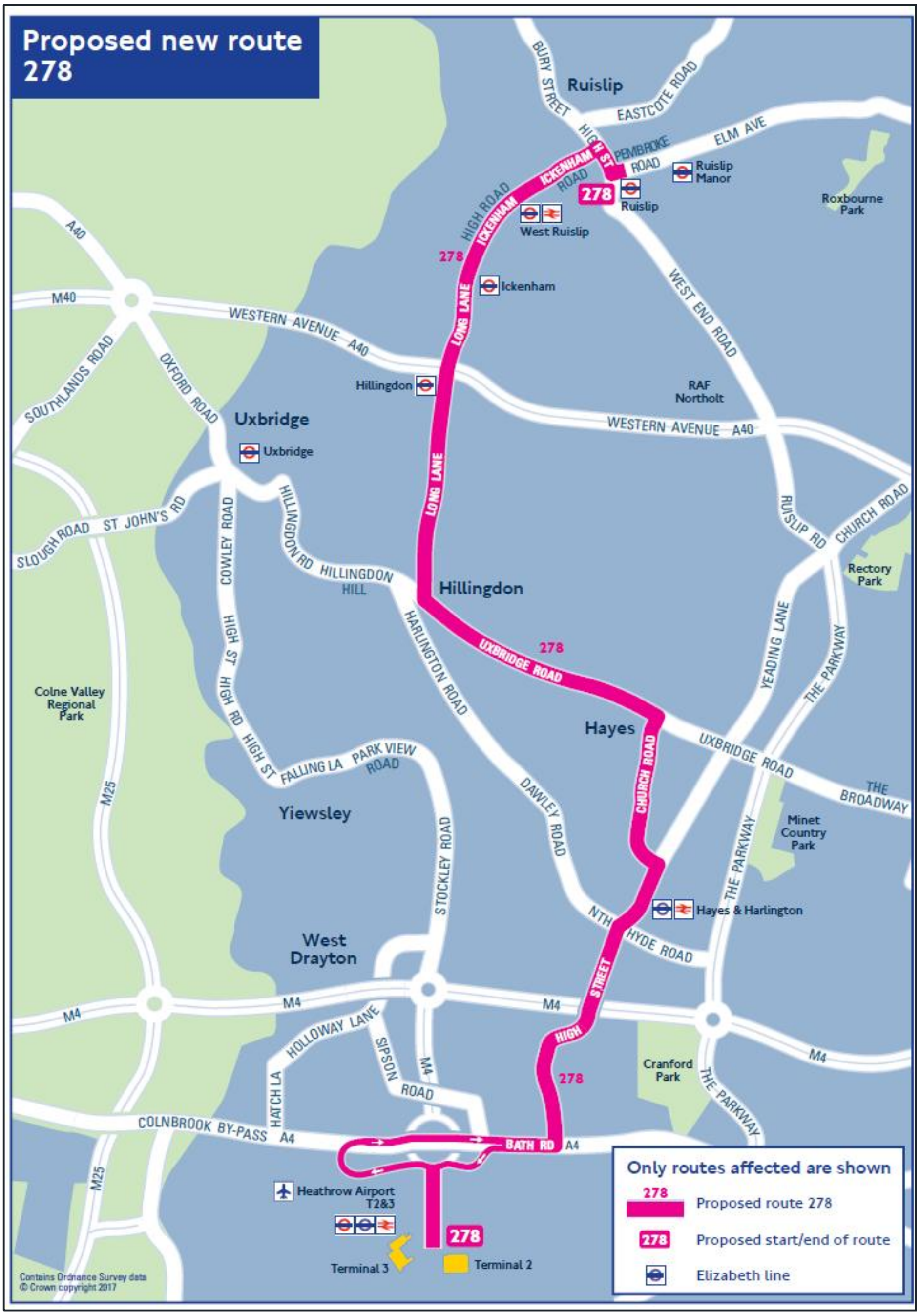


3.3 FUTURE BASELINE

278 bus service

3.3.1. The 278 bus service is anticipated to begin operating in December 2019 and will run directly past the site along Long Lane. The service will run from Ruislip town centre along Long Lane, past West Ruislip, Ickenham and Hillingdon Underground Stations, to Uxbridge Road. From here, it will continue towards Hayes, including Hayes and Harlington Station, which will be situated on the Crossrail line. The route will then head to Heathrow Airport Terminals 2 and 3, where it will terminate. The route is shown in **Figure 3-6**.

Figure 3-6: 278 bus route



3.3.2. The service will be operated by TfL, and the developer will make a financial contribution towards the running of this new local bus service. The bus is anticipated to initially operate with a frequency of four services per hour in both directions from conception. The 278 bus service will provide a much needed north-south public transport link along Long Lane and through the Borough.

3.3.3. A manual PTAL calculation has been undertaken, contained at **Appendix G**, which has used updated service frequencies on the London Underground from Hillingdon Circus, as well as including the propose 278 bus route. The bus stop on the south side of Freezeland Way, serving the Oxford Tube route, has also been included. Adding the 278 and Oxford Tube services, as well as amending service frequencies for the London Underground at Hillingdon Station, increases the site's PTAL to the higher end of 3, indicating a moderate / good level of accessibility.

3.4 PROPOSED ACCESS

Walking and cycling

3.4.1. The pedestrian access to the site will be situated immediately west of the vehicular access, within wide, landscaped public realm.

3.4.2. The scheme proposals have been designed in such a way as to maximise accessibility and permeability for pedestrians and cyclists. Pedestrian and cycle access will be provided from the signalised pedestrian crossings at the northeastern corner of Hillingdon Circus.

3.4.3. The entrance to the site takes the form of a 'gateway', with landscaped public realm leading towards the retail units and residential blocks. It will act as an extension of the high street, providing good pedestrian connections to both Hillingdon Underground Station and the shops and services along Long Lane.

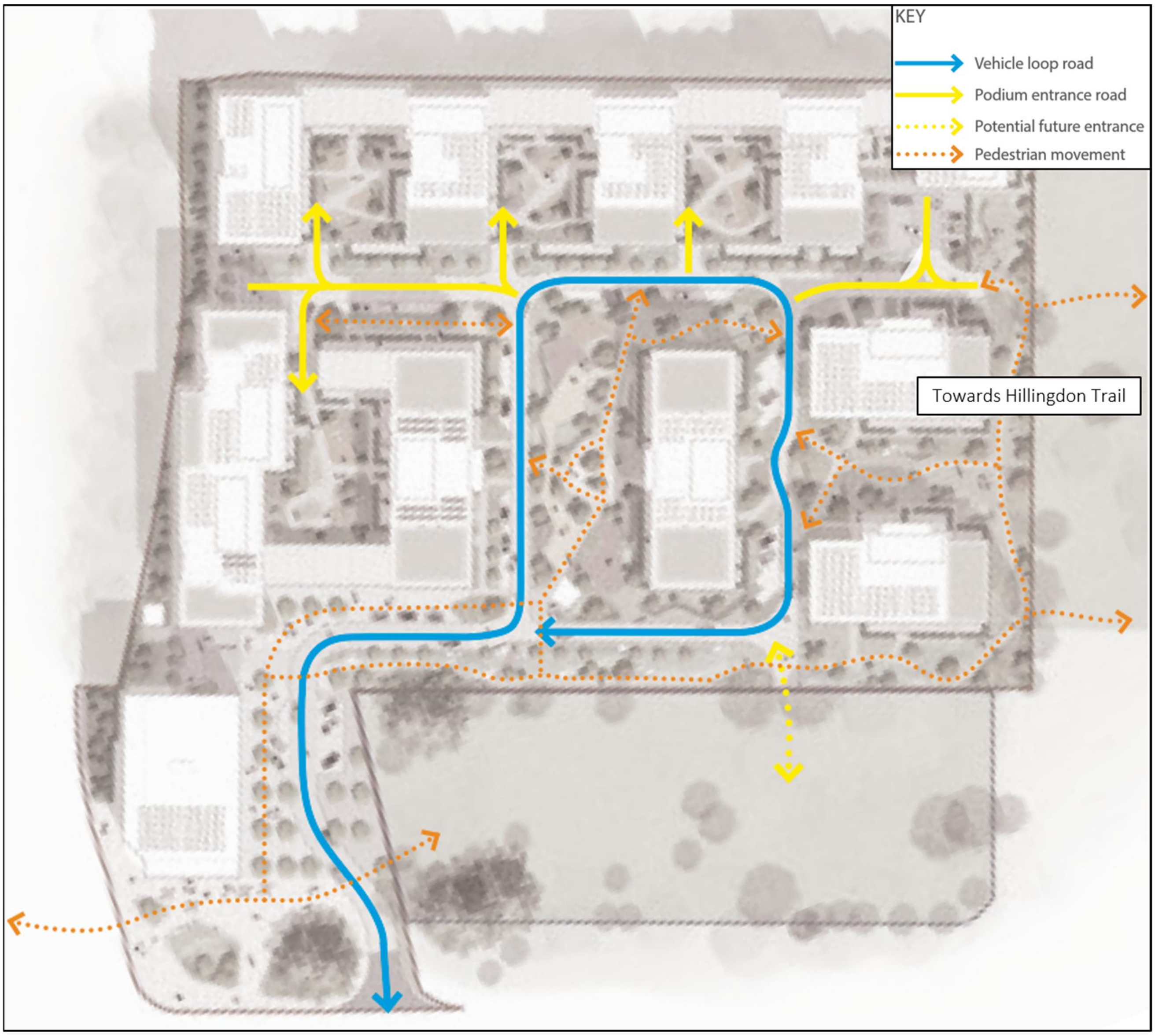
3.4.4. Pedestrians will also have direct access to Long Lane along the site's western perimeter, with access continuing to the north of building 1. Access from both Long Lane and Freezeland Way will lead directly towards the garden square.

3.4.5. The garden square will be the focal point of the site and footways will be provided along the desire lines towards each building. Though the internal loop road will be a shared space, clear delineated crossings will be provided to assist pedestrians and mobility impaired users navigating the site.

3.4.6. Once within the site, an urban square delineated by a change in surface materials provides a pedestrian crossing point east towards the centre of the site and the garden square. Elsewhere across the site, informal crossings are provided (demarcated by change of surface materials) to maximise safety and give the impression of a shared space, which allows good permeability around the site. There are also additional footway links between residential blocks and strategic landscaping features which act to promote this connectivity.

3.4.7. Further pedestrian and cycle accesses will lead from the site into the parkland to the east. This will unlock connections to other green spaces and routes within the local area such as the Hillingdon Trail and Ickenham Marsh. These connections are shown in **Figure 3-7**.

Figure 3-7: Walking connections



3.4.8. A junction improvement scheme at Hillingdon Circus is proposed that would enhance facilities for pedestrians and cyclists crossing through the junction. This is discussed in detail at **Section 3.7** of this report.

3.4.9. The developer has agreed that the proposed development will provide a new 'Cycle Hub' to be located within the site. It will be situated at the front of building 4 within the landscaped public realm. This forms part of the suite of sustainable transport initiatives that will be implemented across the site.

3.4.10. The cycle hub is located close to Hillingdon Underground Station and will benefit both new residents and existing local residents. This would help contribute towards the draft Mayor's Transport Strategy (MTS) target which aims to increase cycling mode share across London from 1% in 2001 to 5% by 2026.

3.4.11. Such facilities are becoming more widespread across London with recent 'Cycle Superhubs' implemented at Hounslow West and North Greenwich Stations. The scale of the hub will at a minimum include:

- High quality, visible and conveniently located visitor cycle parking, which enables the cycle to be secured by the frame and at least one wheel.
- Brompton / traditional cycle hire facilities.
- Repair and maintenance facilities.
- At least 5-10% of provision in the form of accessible stands.
- The provision of CCTV, lighting and shelters where appropriate.
- Safe and conveniently located cycle access routes to and from the station, which link with other cycle routes in the area.
- Signage to, through and from the station area, connecting to cycle routes / key demand routes and the cycle parking facilities.

3.4.12. **Figure 3-8** provides an example of a similar cycle hub that has been recently implemented at Teddington Station.

Figure 3-8: Teddington Cycle Hub

3.4.13. Implementation of this will contribute towards:

- Increasing the number of residents cycling within the local area.
- Raising awareness and increase the visibility and appeal of cycling as a mode of travel.
- Improve cycle security.
- Improve customer satisfaction with station and interchange facilities in the area.

3.4.14. The facilities will include CCTV cameras to provide security, bike maintenance facilities and a weather & live departure screen confirming train times. Examples of this at Teddington Station are shown in **Figure 3-9**.

Figure 3-9: Cycle Hub facilities at Teddington Station

3.4.15. It is proposed that a Brompton and traditional bike hire facility is provided within the Cycle Hub, which will also be easily accessible to users of Hillingdon Underground Station. This will provide local residents and future residents with access to 24/7 automated folding bike hire and traditional bike hire (in 50:50 proportion).

3.4.16. The Brompton Bike Hire station will target different journeys to the Central London cycle hire scheme, due to offering more flexibility in journey type and duration, at one simple low price. The docks allow people to take out bikes and use them for a rolling 24 hour period, as opposed to sub-30 minute journeys with the Santander Bicycle Hire scheme. This means people can treat the Brompton bikes as if they are their own, taking them to work or home, folding them and keeping them by their desks.

3.4.17. It also provides the added flexibility for combined journeys, as these can be transported on buses & trains, and in taxis & cars. Users will need to register online with Brompton which will then allow them to hire a bicycle for 24 hours. Having become a member, users:

- Can reserve a locker to return your bike to either online or by text. Users can return the Brompton bike to any public dock in the UK network. For example, you can take a bike out at Hillingdon and return it to Peterborough.
- Can keep a bike out for as long as you want as charges will just roll over. You only need to make a reservation to return the bike once you decide to give it back.
- Have a choice between two tariffs:

  Frequent - £20 annual fee and daily hire of £2.50.
  Leisure - £1 annual fee and daily hire £5.

3.4.18. Within the Cycle Hub, it is also proposed that a traditional bike hire dock is provided. This will provide local residents and future residents with access to traditional bike hire. It is proposed that there will be a 50:50 split between the proportion of Brompton and traditional bicycles that are available for hire.

Public transport

3.4.19. The site is located adjacent to Hillingdon Underground Station, which can be reached by crossing Hillingdon Circus and then walking approximately 200m north along Long Lane. The station is managed by London Underground Limited (LUL) and is situated on both the Metropolitan and Piccadilly lines.

3.4.20. Hillingdon benefits from being located one stop from the end of the Piccadilly and Metropolitan lines, meaning passengers are always able to board trains towards Central London during the peak hours, the majority of which get seats for their journey.

3.4.21. Combined, the two lines provide 17 trains per hour in the peak hours towards the centre of London and 16 trains per hour to Uxbridge. Tube frequency at Hillingdon is broken down further in **Table 3-1**.

Table 3-1: London Underground service frequencies

Peak / off-peak	Metropolitan line		Piccadilly line	
	Trains per hour (WB)	Trains per hour (EB)	Trains per hour (WB)	Trains per hour (EB)
Morning	10 – Uxbridge	2 – Aldgate (fast) 4 – Aldgate 3 – Baker Street	7 – Uxbridge	8 – Cockfosters
Evening	9 – Uxbridge	7 – Aldgate 1 – Baker Street	8 – Uxbridge	4 – Cockfosters
Off-peak	8 – Uxbridge	7 – Aldgate 1 – Baker Street	3 – Uxbridge	3 – Cockfosters

3.4.22. Bus stops providing access to local bus services are located within Hillingdon LUL station drop-off area and to the south of Hillingdon Circus on Long Lane (A437). In addition, regional services between central London and Oxford operated by the Oxford Tube stop at Hillingdon LUL Station (London-bound) and to the south of the site on Freezeland Way (Oxford-bound).

3.4.23. Service frequencies for buses in the immediate vicinity of the site, including the forthcoming 278 route, are detailed in **Table 3-2**.

Table 3-2: Bus service frequencies

Service No.	Route	Weekday		Saturday		Sunday	
		Freq. (mins)	First / Last Service	Freq. (mins)	First / Last Service	Freq. (mins)	First / Last Service
U2	Uxbridge Underground – Brunel University	8	05:22 / 00:22	8	05:22 / 00:22	20	06:18 / 00:22
U10	Uxbridge Underground – Ruislip	60	07:01 / 19:02	60	06:59 / 19:03	N/A	No Service
Oxford Tube	Oxford – London Victoria	10	24 hour service	10	24 hour service	12	24 hour service
278	Ruislip – Heathrow	15	TBC	15	TBC	15	TBC

3.4.24. To further encourage travel by public transport, a £40 Oyster Card credit will be provided to each household upon first occupation. The Oxford Tube bus stop along Freezeland Way will also be improved and made accessible to mobility impaired persons.

3.4.25. It is proposed that the developer will make a contribution towards bus improvements in the Hillingdon area. It is envisaged that the contribution will go towards the new 278 service, which is proposed to support new Elizabeth line services running between Heathrow and Ruislip via Hayes and Hillingdon. The new service will significantly improve local residents' accessibility within the area and will enhance the feeling of a focal transport 'hub' at Hillingdon Underground Station on the edge of the development. The service will be highly accessible to those living and working across the site and local area.

Private vehicles

3.4.26. An updated priority junction design is proposed in place of the existing site access location along Freezeland Way, approximately 50m east of the Hillingdon Circus junction. A break in the central reservation along Freezeland Way provides access to the site if arriving from the east, meaning traffic approaching from Freezeland Way turning right into the site can do so without having to route via Hillingdon Circus. A right-turn filter has been introduced to eliminate the risk of vehicles blocking general Freezeland Way traffic approaching Hillingdon Circus.

3.4.27. All traffic approaching the site from the south must make a left turn at Hillingdon Circus and undertake a u-turn at the roundabout to pass through the junction again and make left turn into the site access. Given the forecast level of vehicle trips arriving at the site in peak hours this would equate to approximately 10 vehicles in the PM peak hour which would not justify the inclusion of a right turn facility at the junction. Traffic arriving from the west and north can pass through the junction and turn left into the site access.

3.4.28. All traffic exiting the site must make a left turn along the Freezeland Way loop road to the east. These vehicles can then filter into the traffic as the road loops back round to the west.

3.4.29. The site access junction will lead north into the site, running through the proposed gateway square. This road will accommodate two-way traffic movements. The access road will lead to an internal looping road around the garden square, providing access to each individual building across the development. This route will operate one-way in a clockwise direction.

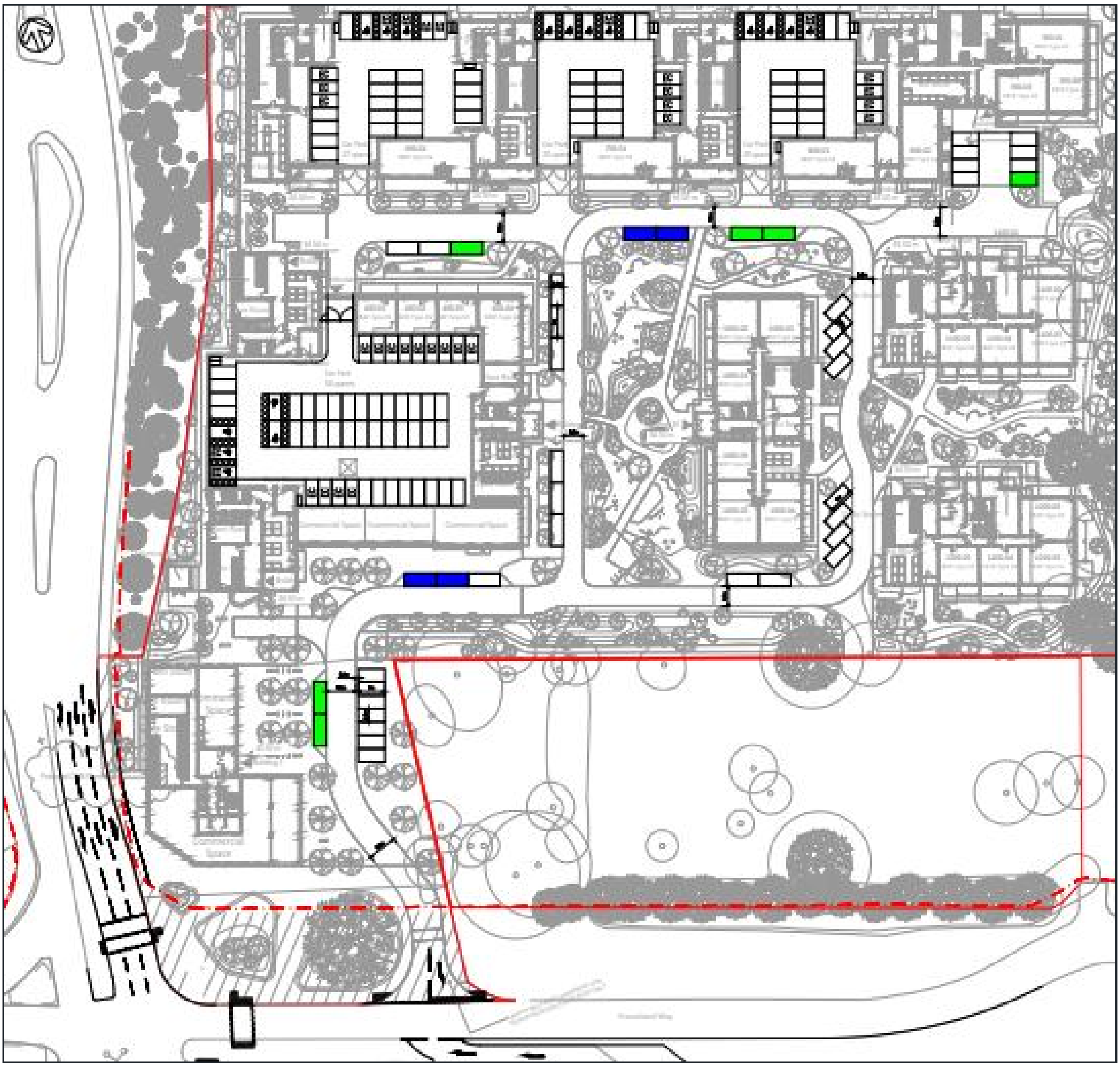
3.4.30. It is envisaged that the internal roads will be treated as pedestrian and cycle friendly public realm, based on the forecast traffic flows and desire to prioritise pedestrian and cycle activity within the site. Some on-street parking is proposed to help activate the streetscape and to ensure the buildings around the eastern and southern site boundaries have access to parking given that these building will not feature off-street podium car parks. The loop road will be designed to accommodate refuse collection vehicles, emergency vehicles and servicing vehicles (including removal trucks). The internal road design will include turning heads where appropriate to enable refuse vehicles to collect waste from within a 10m drag distance, as per LBH and TfL guidance.

3.4.31. All roads within the site have been designed to Manual for Streets standards. The two-way road towards the site access has a width of 5.5m, whilst the one-way loop road around the garden square has a width of 3.7m. A 20mph zone will be put in place to improve the pedestrian / cyclist environment.

3.4.32. Secure car parking will be provided in the form of five podium car parks located around the western and northern site boundaries. Each podium car park will provide step-free access to the blocks it sits beneath. The car parks will be accessible via fob and have been designed to IStructE (2014) guidance 'Design recommendations for multi-storey and underground car parks'. The layout of each of these car parks is detailed in **Appendix H**.

3.4.33. Additional perpendicular, angled and parallel parking are located on the internal road network. These bays will predominantly be designated as residential unit parking for residents living in blocks further from the secure car parks, with a small number of visitor and car club spaces also provided. The internal highway and parking layout is shown in **Figure 3-10** and **Appendix H**.

Figure 3-10: Internal highway and parking layout



3.5 SERVICING

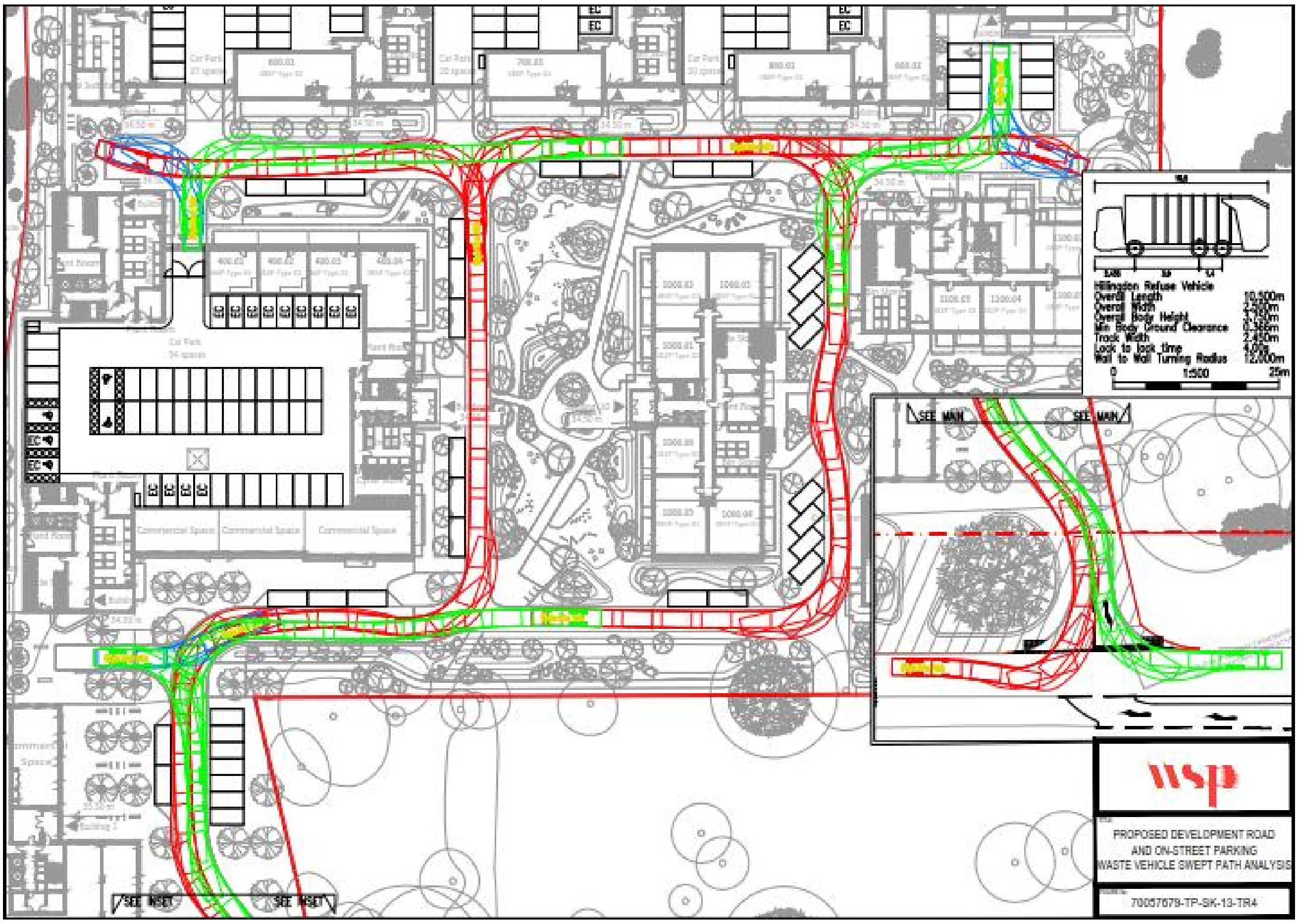
Servicing arrangements

3.5.1. It is proposed that the residential dwellings receive deliveries and servicing from on-street within the site. The largest vehicle to access the residential element of the site will likely be a refuse collection vehicle (10.5m). **Figure 3-11** (re-provided in **Appendix H**) shows the swept path analysis to demonstrate that all service and delivery vehicles can independently manoeuvre within the site and egress in forward gear onto Freezeland Way. Dedicated turning heads are provided across the site where necessary.

3.5.2. Bulky goods deliveries, as well as takeaways and grocery deliveries will be taken to the front door where residents will meet and collect the items. Smaller non-perishable goods, such as Amazon deliveries, will be delivered to the concierge in Block 1, and the resident notified by text that their item has arrived and is available for collection. Residents will be notified of this strategy and when purchasing items online will advise couriers to deliver items to the concierge.

3.5.3. A dedicated servicing area will be provided for the retail units in Blocks 1 and 2. This will be situated to the rear of Block 1, and be able to accommodate one 10m rigid truck. Vehicle swept path plans in **Figure 3-11** demonstrate that the manoeuvres can safely be undertaken (**Appendix H**). The forecast servicing trip generation is discussed in **Section 5**.

Figure 3-11: Refuse vehicle swept path analysis



3.5.4. Full details of the servicing strategy are outlined within the Delivery and Servicing Plan, contained at **Appendix D**.

3.6 PARKING

Private vehicles

3.6.1. In order for the development to balance the need to provide sufficient car parking to meet demand whilst also promoting sustainable travel, on-site car parking provision for the residential element of the development will be provided at a ratio of 0.3 spaces per dwelling, equating to 154 parking spaces. This is in line with maximum car parking standards as set out in the draft New London Plan (2018).

3.6.2. The car parking ratio will vary across different unit types, with larger family units having a higher parking ratio than smaller units. The breakdown of residential car parking is detailed in **Table 3-3**.

Table 3-3: Residential car parking provision allocation

Dwelling Size	No. Units	Parking Spaces	Ratio (Spaces/Unit)
1 bed	221 units	-	Car-free
2 bed	215 units	76	0.35
3 bed	78 units	78	1
Total	**514 units**	**154**	**0.3**

3.6.1. A detailed breakdown of site-wide car parking provision is detailed in **Table 3-4**.

Table 3-4: Breakdown of site-wide car parking provision

Location	Standard bays	Blue Badge bays	Total bays
Podium 2/3/4	49	5	54
Podium 5/6	17	3	20
Podium 6/7	17	4	20
Podium 7/8	24	4	27
Podium subtotal	***105***	***16***	***121***
On-street residential	33	0	33
On-street visitor	6	0	6
On-street car club	4	0	4
On-street subtotal	***43***	***0***	***43***
Total	**148**	**16**	**164**

3.6.2. 13 motorcycle parking spaces will also be provided for residential uses.

3.6.3. A report on residential parking in new developments was produced by TfL in 2012 and examines the relationship between parking, car ownership and car use amongst residents of new developments in Greater London. Key findings from the report were:

- There is a strong relationship between public transport and household car ownership – as public transport accessibility increases, car ownership in new developments falls.
- The more parking provided by a new development, the more attractive it becomes to car owning households: people choose housing that meets their needs.
- The more parking provided by a new development, the higher the household car ownership level. Where there is more parking, there are more cars. This was true for all groups and in all areas studied.
- Developments with more parking produce more car travel. People who own cars use them: driving their cars frequently at all times of day, including the busiest peak periods.
- The level of car parking provided in new developments therefore has a substantial impact on the level of car use generated by that development.

3.6.4. The report demonstrates that where parking is not made available for prospective residents of the proposed development, it will attract people who do not require a car. Indeed, this will in turn mean that car travel will subsequently be lower at the development. In addition to this, a number of measures such as a financial contribution towards improved local bus services, the provision of on-site car club bays, and an on-site cycle hub with maintenance / repair facilities and cycle hire, are proposed within the development to encourage sustainable travel.

3.6.5. Based on the sustainable measures to be implemented, and GLA and TfL aspirations, a provision of 0.3 spaces per dwelling is considered appropriate for this development.

3.6.6. In accordance with draft New London Plan standards, 20% of the spaces will be for electric vehicles ('active' provision) with the remaining spaces all having passive provision for electric vehicles in the future. Accessible parking will be provided in line with draft New London Plan standards, with provision for 16 accessible spaces. These bays will all be provided at ground level in close proximity to the accessible units. Demand for accessible bays will be monitored and standard bays would be converted if required. A Car Parking Management Plan has been prepared and included at **Appendix E**, outlining the management and allocation of the car parking provision.

Visitor car parking

3.6.7. The retail units are intended to be used predominantly by local residents with trips made on foot. As such, no public parking will be provided for retail uses. A small number of parking bays (6) will be allocated for residents' visitors.

Car club

3.6.8. Up to 4 car club bays will also be provided at the development, with 3 years' free membership provided to each household upon first occupation. This will provide residents who don't own a car with an opportunity to use one when they require. The car club cars will also be available for use by the wider local community.

3.6.9. Initial discussions with car club operators ZipCar and Enterprise suggest that the development at full build out could support 4 car club cars.

3.6.10. It is proposed that up to four car club cars are provided within the site to support the development. It is envisaged that one car will be provided upon initial occupancy, with usage monitored and reported prior to implementation of a second vehicle. ZipCar have a threshold of 45% utilisation before they look to increase the number of car club vehicles on site. Enterprise adopts a lower threshold of approximately 30% utilisation. This monitoring exercise would help to inform the Travel Plan targets and also the number of spaces to be provided for future phases and help ensure that the number of car club vehicles on site meets the demand.

3.6.11. The location of the car club bays will maximise exposure and ensures the bays are conveniently located regardless of which block future residents reside in. 2 bays will be located close to the site entrance, maximising visibility for both those residing within the development and others in the wider local community. 2 further bays will be provided close to the centre of the development, also in a highly visible and accessible location.

3.6.12. The chosen car club provider will be marketed at the development through:

- Bespoke marketing material.
- Advertisement within the development.
- Car club ambassadors.

3.6.13. It is recognised that the best time to influence travel behaviour is when residents first move into or utilise a new development. The car club will therefore be in place and operational prior to occupation of the first dwelling. New residents will be provided with 3 years' free annual membership upon first occupation that will be funded by the developer.

3.6.14. The benefits of the car clubs will be highlighted to future residents, including:

- Cheaper – owning a car has the added cost of insurance, tax, service and maintenance and depreciation.
- Greener – generally those involved in the scheme choose walking, cycling and public transport as their mode of travel, using the car club only when it is the best option.
- Convenient – you can book with a minute's notice and be on your way in a clean, well looked after car, which you use only for as long as you need it.

Cycles

3.6.15. As stated in Section 3.5, a 'Cycle Hub' is proposed at the development. This hub will include high quality repair and maintenance facilities, as well as Brompton and traditional cycle hire. This will further facilitate a shift towards travel by active modes at the site and encourage the take up of cycling.

3.6.16. Cycle parking is to be provided in accordance with the draft New London Plan. For the residential units a total of 918 cycle parking spaces will be provided. These will be situated in secure, covered locations and be made accessible in order to maximise use. The provision will take the form of 95% two-tier 'Variohub' and 5% accessible Sheffield Stands, as per the London Cycle Design Standards (LCDS). The cycle parking will be provided within locked, sheltered enclosures, with sliding gates provided to enable residents to access their bicycle easily. The parking will be provided at ground level within each individual building and the quantum within each store will correspond directly with the requirements relating to the specific blocks of flats that the store serves.

3.6.17. A small element of cycle parking will also be provided for the commercial / retail units. This again will be provided in line with draft New London Plan requirements. Short-stay cycle parking will be incorporated into the public realm, strategically located in order to increase exposure. **Table 3-5** details the overall cycle parking provision at the proposed development by land use. It has been assumed that the flexible commercial use will take the form of A2-A5 F&B retail.

Table 3-5: Proposed cycle parking provision

<table>
<tr><th>Land Use</th><th>Draft London Plan standards for long-stay parking</th><th>Draft London Plan standards for short-stay parking</th><th>Relevant development quantum</th><th>Long-stay cycle parking provision</th><th>Short-stay cycle parking provision</th></tr>
<tr><td rowspan="2">Residential (C3)</td><td>1.5 spaces per 2 person 1 bed</td><td rowspan="2">1 space per 40 units</td><td>221</td><td>332</td><td rowspan="2">13</td></tr>
<tr><td>2 spaces per 2+ bed</td><td>293</td><td>586</td></tr>
<tr><td>Flexible retail (A3)</td><td>1 space per 175m²</td><td>1 space per 40m²</td><td>1,141m²</td><td>7</td><td>29</td></tr>
<tr><td colspan="4">Total</td><td>925</td><td>42</td></tr>
</table>

3.6.18. Cycle parking provision will meet minimum standards set out within the draft New London by providing 1.5 cycle spaces per 1 bedroom unit and 2 cycle spaces per 2+ bedroom unit. Its implementation will reflect the guidance set out in the Sustainable Transport SPD by considering:

- Layout – all parking will be conveniently located and laid out to ensure that users can comfortably manoeuvre in and out of cycle stands.
- Signage – signage will be provided on and near the site directing users to cycle parking facilities.
- Attractive – cycle parking facilities will be maintained to a good condition to ensure it is inviting to use.
- Secure – to be located in areas where they have high levels of passive surveillance and where this is not possible, security lighting will be implemented to further reduce the risk of bike theft.
- Covered – future residents will benefit from cycle parking that is sheltered and protected from the elements.
- Type of stand – Sheffield / Camden type stands will be used. Front wheel locking stands will not be considered.

3.6.19. The cycling related measures will contribute towards encouraging more people to cycle and improve safety while providing better streets and places for everyone.

3.6.20. **Table 3-6** provides a breakdown of the long-stay residential cycle parking provision within each block. All long-stay commercial cycle parking will be situated within the Cycle Hub, in block 4.

Table 3-6: Long-stay residential cycle parking breakdown by block

Block	1 bed units	2+ bed units	Total units	Provision
Building 1	34	27	61	105
Building 2	23	15	38	65
Building 3	3	32	35	69
Building 4	5	40	45	88
Building 5	41	23	64	108
Building 6	23	22	45	79
Building 7	23	22	45	79
Building 8	23	23	46	81
Building 9	0	15	15	30
Building 10	12	38	50	94
Building 11	17	18	35	62
Building 12	17	18	35	62
Total	**221**	**293**	**514**	**918**

3.6.21. The long-stay residential cycle parking will be provided in line with London Cycle Design Standards, with 95% of spaces provided as two-tier stands, and the remaining 5% taking the form of accessible Sheffield stand spaces.

3.6.22. The long-stay cycle parking and associated lockers, showers and changing facilities for staff of the commercial units are provided within the 'Cycle Hub', situated in Block 4. The cycle parking locations are shown in **Figure 3-12**.

Figure 3-12: Cycle parking locations

3.7 HIGHWAY PROPOSALS

Proposals

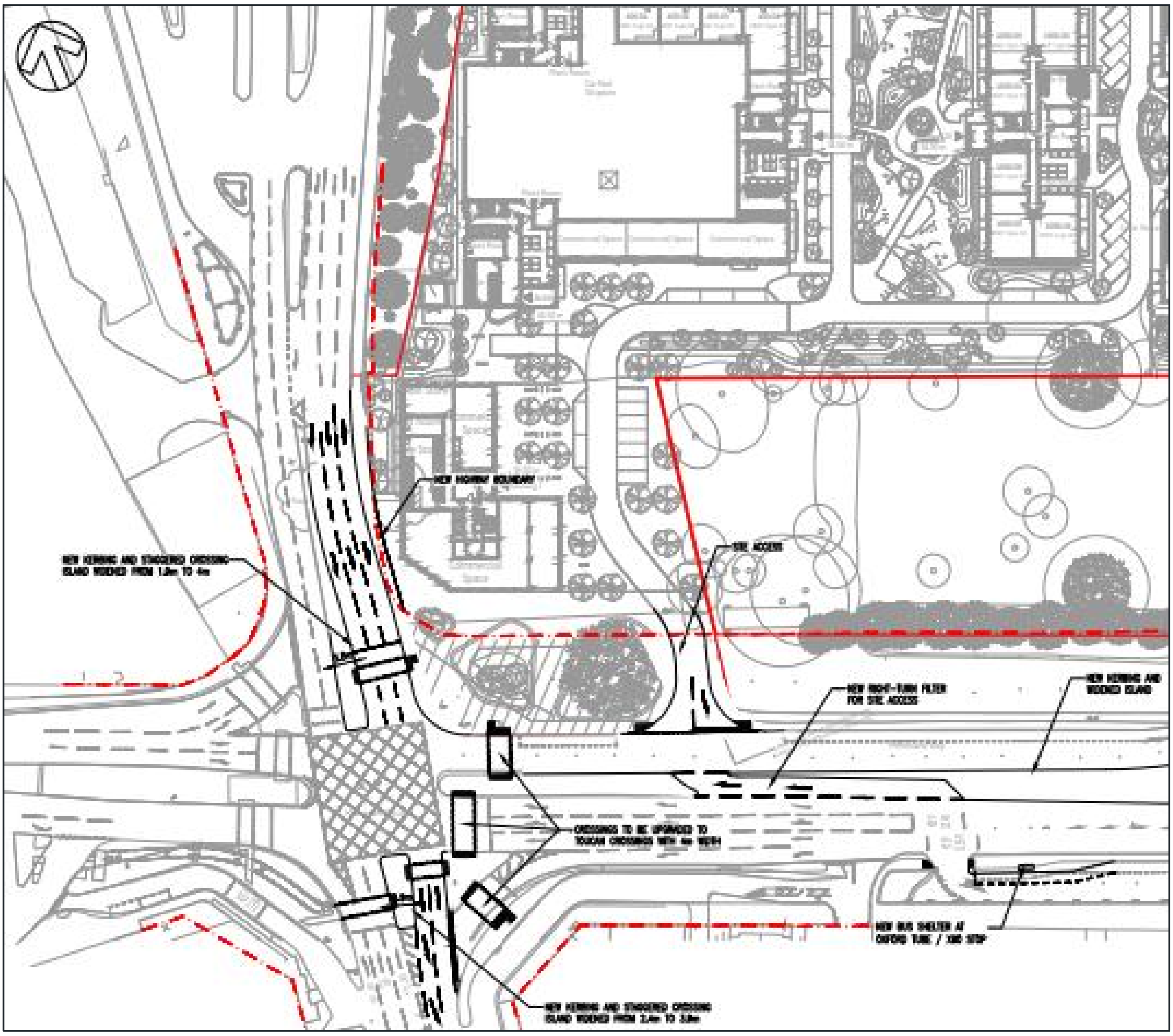
3.7.1. The entrance to the site takes the form of a 'gateway', with landscaped public realm leading towards the retail units and residential blocks. It will act as an extension of the high street, providing good pedestrian connections to both Hillingdon Underground Station and the shops and services along Long Lane.

3.7.2. Pedestrian and cycle access will be provided along the main desire lines, such as from Long Lane north towards the cycle path along the southern side of Freezeland Way. Adjustments will be made along the northern, eastern and southern pedestrian crossings of the Hillingdon Circus junction. The pedestrian islands will be widened, enhancing safety and ease of access for pedestrians and cyclists moving across the junction. The proposals include widening the central staggered pedestrian islands on Long Lane North from 1.9m to 4m and on Long Lane South from 2.4m to 3.9m. It is also proposed to widen the eastern staggered crossing island from 3.9m to 4.7m, and the eastern crossing will be upgraded to a toucan crossing, providing improved connections by bike towards the cycle path along the south side of Freezeland Way. The right turn filter along Freezeland Way westbound will also be extended, as recommended in the Road Safety Audit (included at **Appendix F**). It is presumed that these works would form part of the off-site highways proposals to be delivered prior to occupation as part of the Section 278 works.

3.7.3. In addition, the Oxford Tube bus stop along Freezeland Way will be widened to allow for a suitable bus shelter. Dropped kerbs will also be provided to allow for mobility impaired access.

3.7.4. These improvements are shown in shown in **Figure 3-13** and contained in **Appendix H**, and will help connect to convenient routes towards local facilities and the public transport service access points within the immediate surrounding area.

Figure 3-13: Off-site highway improvements

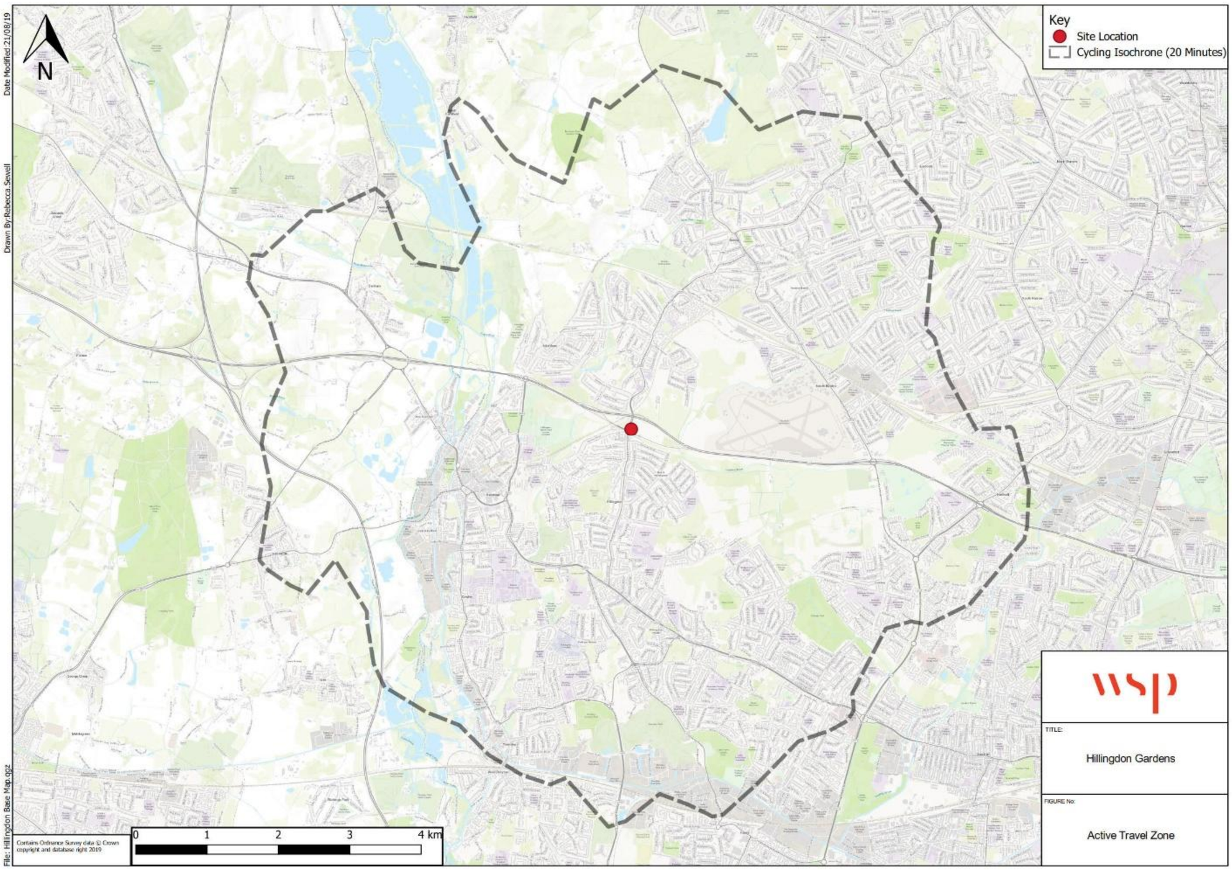


4 ACTIVE TRAVEL ZONE

4.1 INTRODUCTION

4.1.1. The Active Travel Zone (ATZ) assessment considers transport impact on a spatial scale, rather than by travel mode. The ATZ encompasses the area around the Hillingdon Gardens site within a 20-minute cycle journey as determined by the TfL WebCAT tool, illustrated in **Figure 4-1**. All figures included in the Active Travel Zone assessment are also included at **Appendix I**.

Figure 4-1: Active Travel Zone

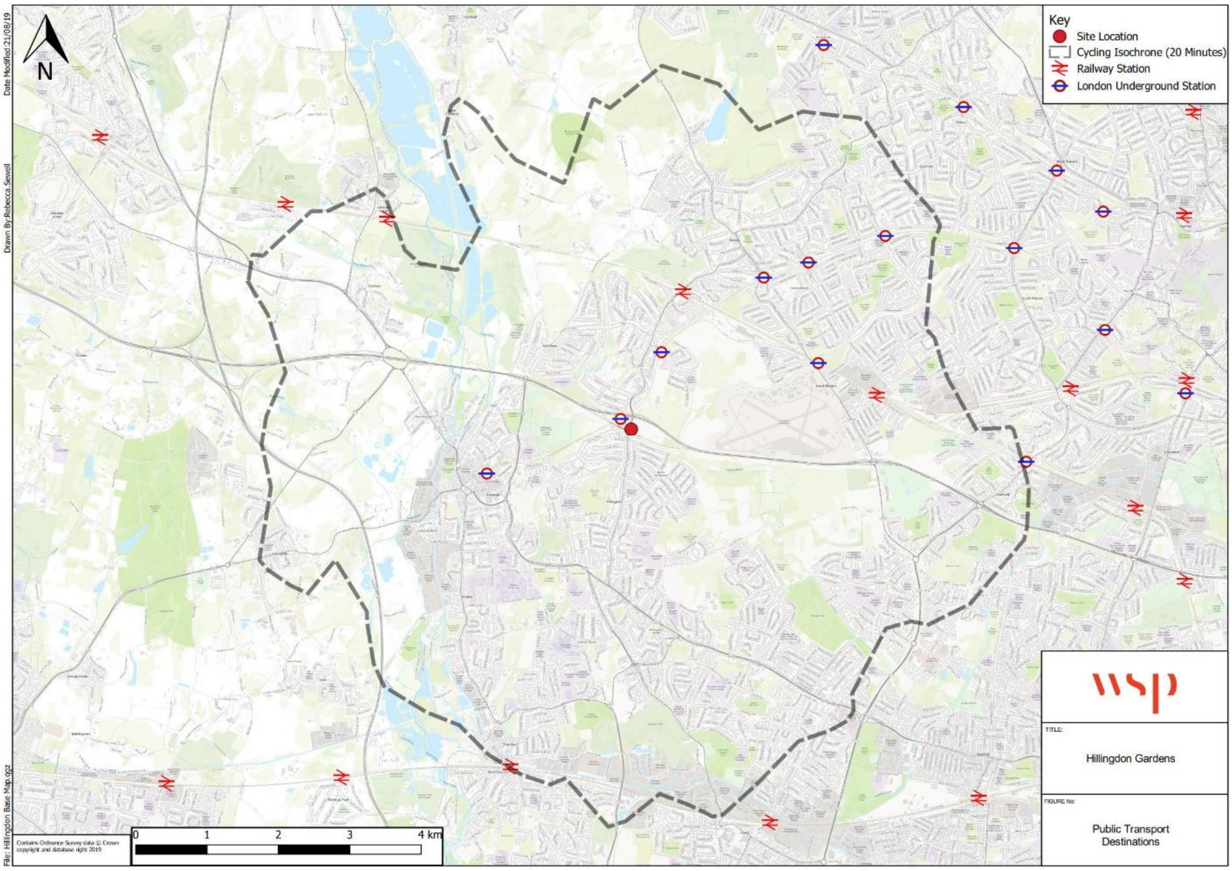


4.2 KEY DESTINATIONS

Public transport services

4.2.1. Key public transport hubs within the ATZ, including bus stops, London Underground stations and National Rail stations, are outlined in **Figure 4-2**.

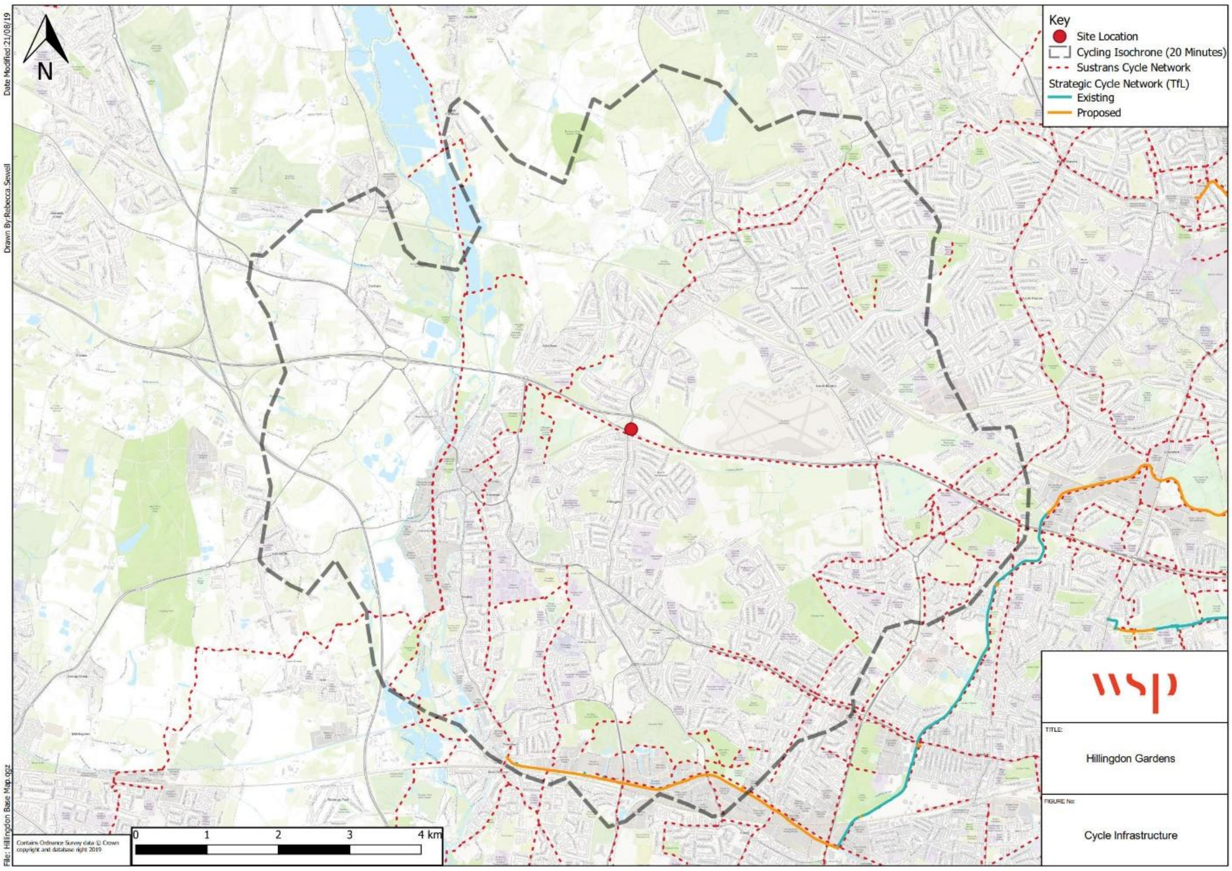
Figure 4-2: Public transport destinations within ATZ



Strategic cycle network

4.2.2. Connections to the London-wide strategic cycle network, including future improvements, are detailed in **Figure 4-3**.

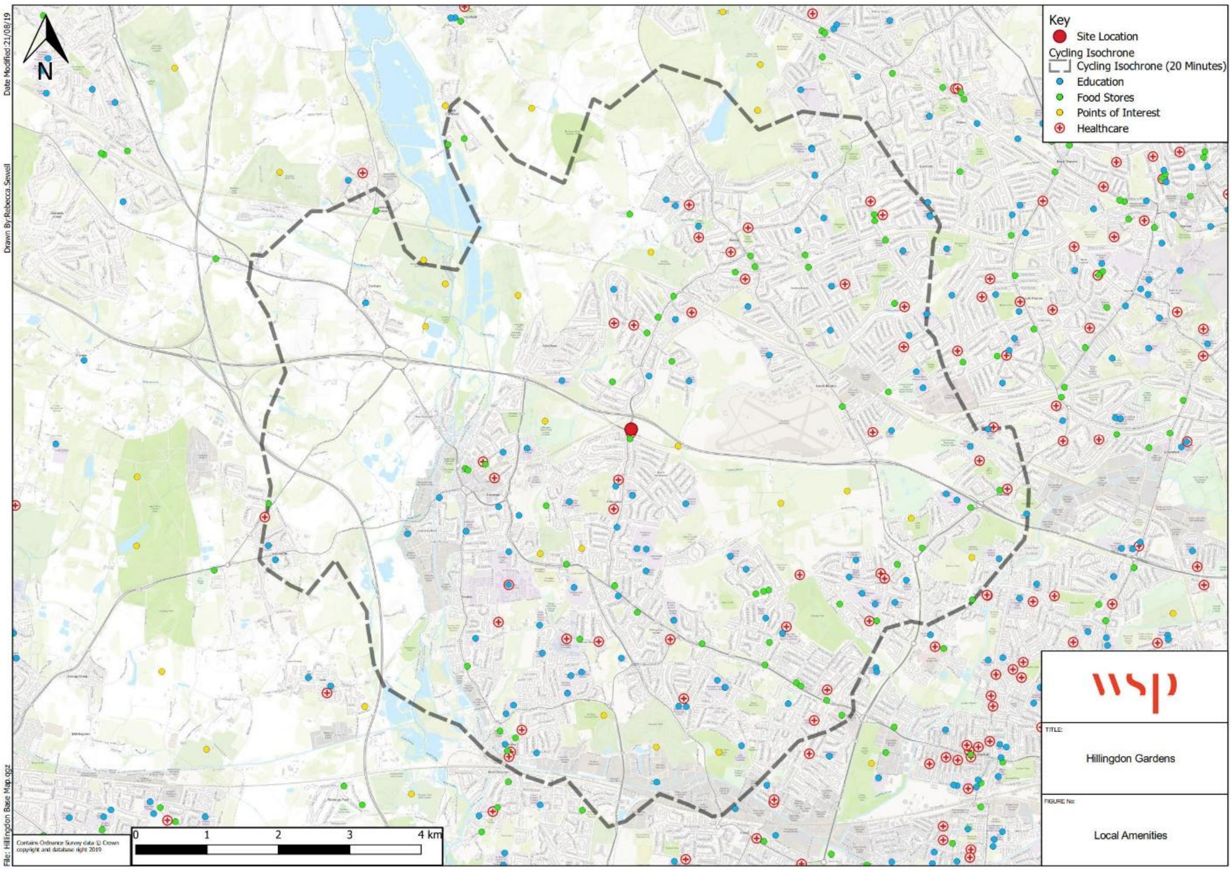
Figure 4-3: Strategic cycle network connections within ATZ



Town centres and amenities

4.2.3. Key local amenities within the ATZ include parks, schools / education institutions, hospitals / medical practices, and places of worship, as well as other potential key trip attractors such as stadiums, or museums. **Figure 4-4** details the key amenities within the ATZ.

Figure 4-4: Amenities within ATZ



4.3 PRIORITY GROUPS

4.3.1. The key trip attractor associated with the proposed development is the residential use, and when determining the relevance of key destinations, those linked to the residential use have been prioritised as follows:

- Public transport services – high priority
- Strategic cycle network – high priority
- Town centres – high priority
- Amenities – high priority

4.3.2. As the proposals are residential in nature, each of the above destination types is of high priority and will be well utilised by users of the development. Each trip type will be made by residents of Hillingdon Gardens on a day-to-day basis.

4.4 MOST IMPORTANT DESTINATIONS

4.4.1. On the basis of public transport services, the strategic cycle network, town centres and amenities all being considered to be high priority destination types, the most important destinations within the ATZ have been determined as follows:

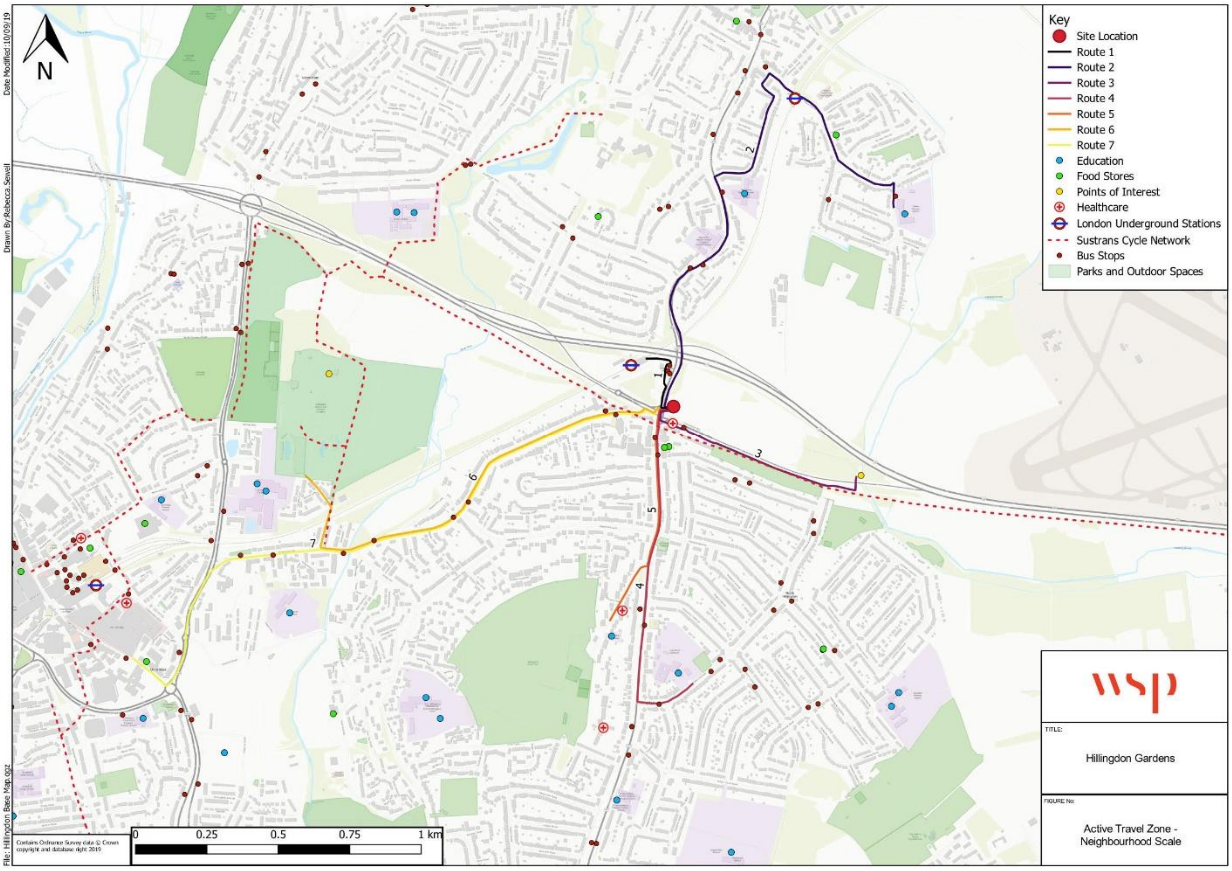
- Hillingdon Station – London Underground station located on Metropolitan and Piccadilly lines.

- Glebe Primary School – nearby Primary education.
- Hillingdon Trail – nearest access point to the strategic cycle network.
- Oak Farm Primary School – nearby Primary education.
- Oakland Medical Centre – nearby GP practice.
- Hillingdon Sports Centre – nearby activity and sport facilities.
- Uxbridge town centre – nearby shopping area including supermarkets.

4.5 NEIGHBOURHOOD SAFETY AND MOST IMPORTANT JOURNEYS

4.5.1. As part of the next stage of the ATZ assessment, the ATZ has been remapped at a neighbourhood scale, with the key routes to each of the most important destinations outlined in **Figure 4-5**.

Figure 4-5: ATZ at neighbourhood scale



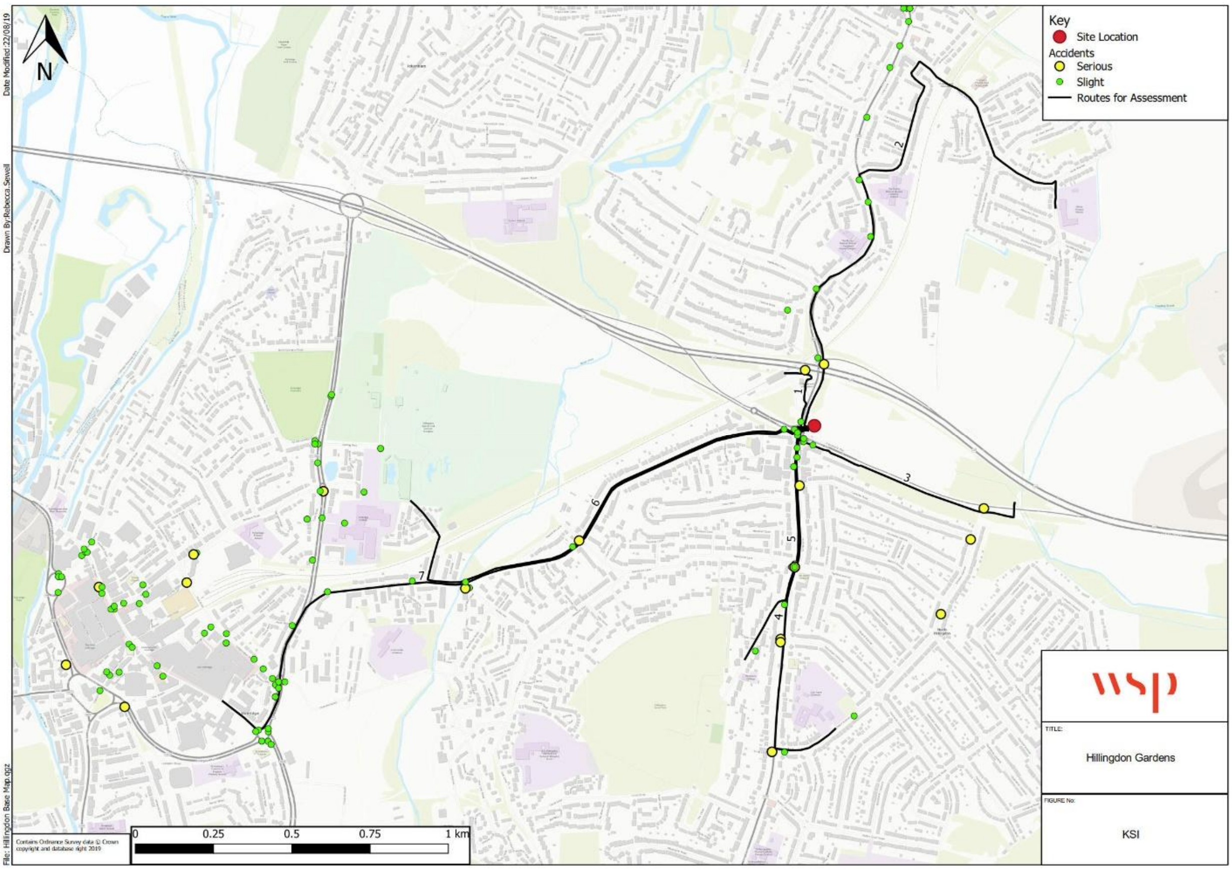
4.5.2. To understand the impacts of these journeys on travel safety, Personal Injury Accident (PIA) data has been obtained from TfL for the entire ATZ for the latest available three year period, from 1 January 2016 to 31 December 2018.

4.5.3. Across the ATZ, a total of 121 PIAs were recorded. A total of 18 collisions were classified as serious, whilst none involved fatalities.

4.5.4. As part of the Mayor’s Transport Strategy, Vision Zero sets out the goal that, by 2041, all deaths and serious injuries will be eliminated from London’s transport network. The proposed improvements to Hillingdon Circus, outlined in **Section 3.7**, will contribute towards a safer environment for pedestrians and cyclists at the junction.

4.5.5. These improvements will help work towards TfL’s Vision Zero target. All the KSIs within the vicinity of the site have been overlaid onto **Figure 4-5** to understand the crossover KSIs and the routes to key destinations, as presented in **Figure 4-6**.

Figure 4-6: KSIs along routes to key destinations



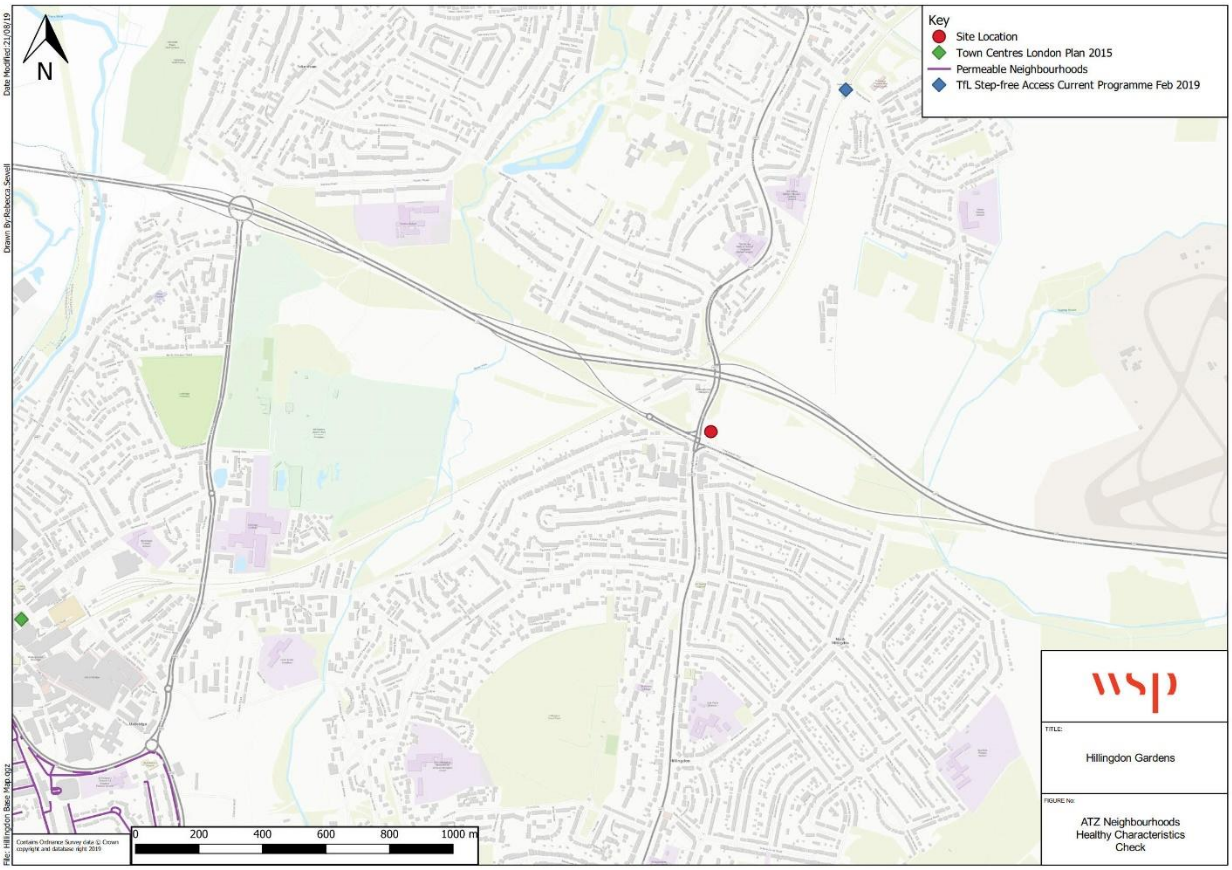
4.5.6. **Figure 4-6** shows that, within the last three years, one cluster of incidents has occurred along routes included in the Active Travel Zones assessment. This cluster is located along Long Lane, south of the junction with Parkway, where two serious incidents occurred, and this link is situated along the route from the site towards Oak Farm Primary School. Analysis of the PIA data shows that both of these accidents occurred as a result of human error and do not reflect the nature of the infrastructure in this location. It is not thought that any mitigation in this area would have prevented these accidents occurring.

4.6 NEIGHBOURHOOD HEALTHY CHARACTERISTICS ASSESSMENT

4.6.1. The characteristics of a healthy neighbourhood include street density / permeability, access to green spaces and a number of public transport services within walking distance. A healthy neighbourhood should be highly permeable, with walking and cycling connections deviating from the desire line as little as possible.

4.6.2. **Figure 4-7** details the locations of nearby town centres, fully accessible public transport connections and the permeability of the neighbourhood surrounding the site.

Figure 4-7: ATZ neighbourhood healthy characteristics check



4.6.3. As shown in **Figure 4-7**, the streets surrounding the site are not particularly high density, and the site is surrounded by green space to the west (beyond Hillingdon Station) and east, as well as immediately to the north. The Ickenham Marshes and Yeading Brook dominate the area to the east of the site, whilst playing fields associated with the Hillingdon Sports Centre take up most of the land to the west. The neighbourhood to the north and south of the site is predominantly residential, though there are a number of schools and healthcare facilities. Though the nearest town centre is Uxbridge, approximately a 30 minute walk to the west, the immediate area to the south, along Long Lane, is heavily retail-focused at ground level with other commercial uses above.

4.6.4. Though the area around the site could not be categorised as a permeable neighbourhood, the pedestrian and cycle connections to nearby facilities generally follow the desire line, with Hercies Road heading southwest towards Uxbridge, as well as a north-south route along Long Lane.

4.6.5. **Figure 4-7** shows that Ickenham Station is part of the TfL step-free access programme, with improvement works planned to allow step-free access from street to train. Though Hillingdon Station is not fully accessible, lifts from the bridge within the station allow step-free access from the street to platform level.

4.6.6. As discussed in **Section 3.7**, highway engineering works are proposed by the way of pedestrian and cyclist enhancements around the Hillingdon Circus junction, improving accessibility towards Hillingdon Station and nearby bus stops. The introduction of the 278 bus service will also help make the Hillingdon area and Long Lane corridor more permeable by public transport.

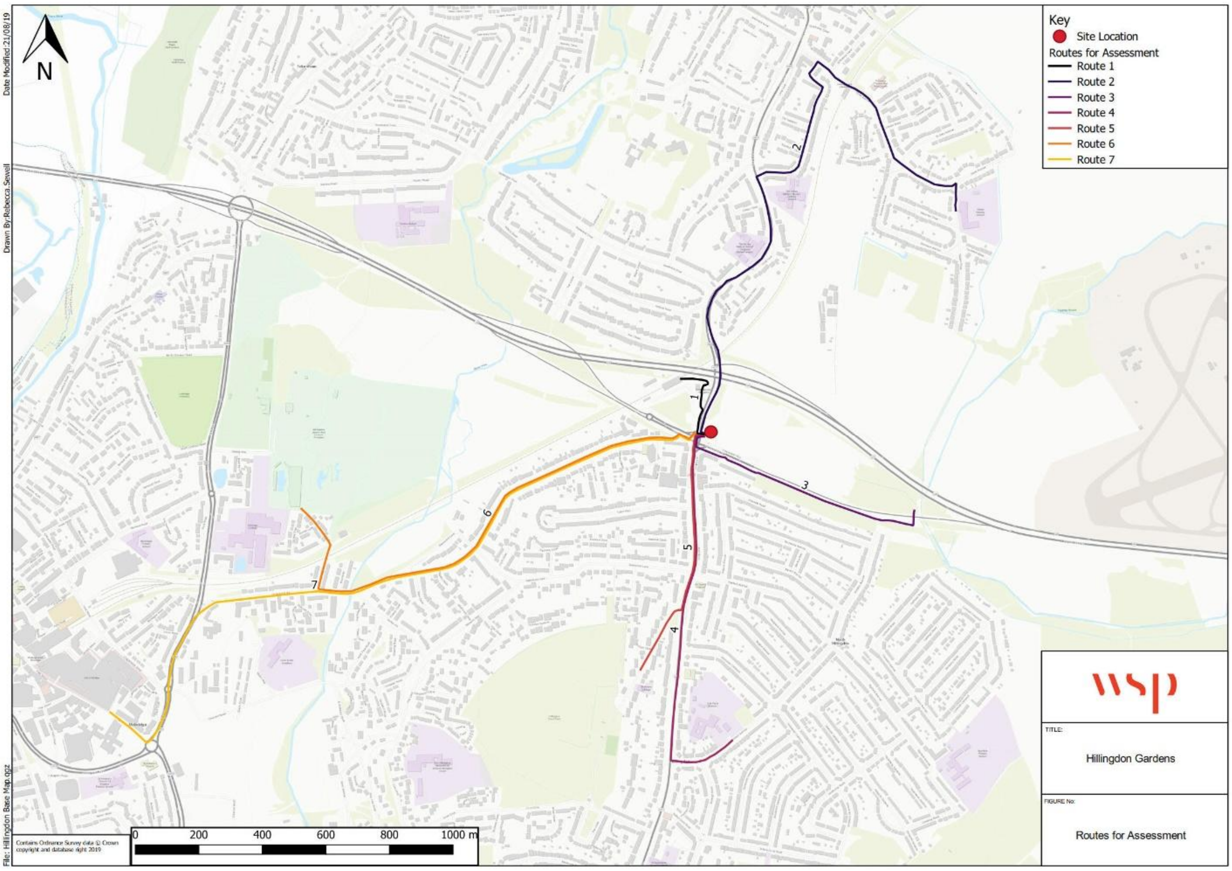
4.7 MOST IMPORTANT JOURNEYS ASSESSMENT

4.7.1. As part of the Active Travel Zones Assessment, on-site studies are taken for the route to each key active travel destination. These routes are as follows:

- Towards Hillingdon Station.
- Towards Glebe Primary School via Long Lane and Edinburgh Drive.
- Towards the Hillingdon Trail via Freezeland Way.
- Towards Oak Farm Primary School via Long Lane and Windsor Avenue.
- Towards Oakland Medical Centre via Long Lane and Parkway.
- Towards Hillingdon Sports Centre via Hercies Road and North Way.
- Towards Uxbridge town centre via Hercies Road and B483 Park Road.

4.7.2. **Figure 4-8** details each route that has been assessed.

Figure 4-8: ATZ routes for assessment



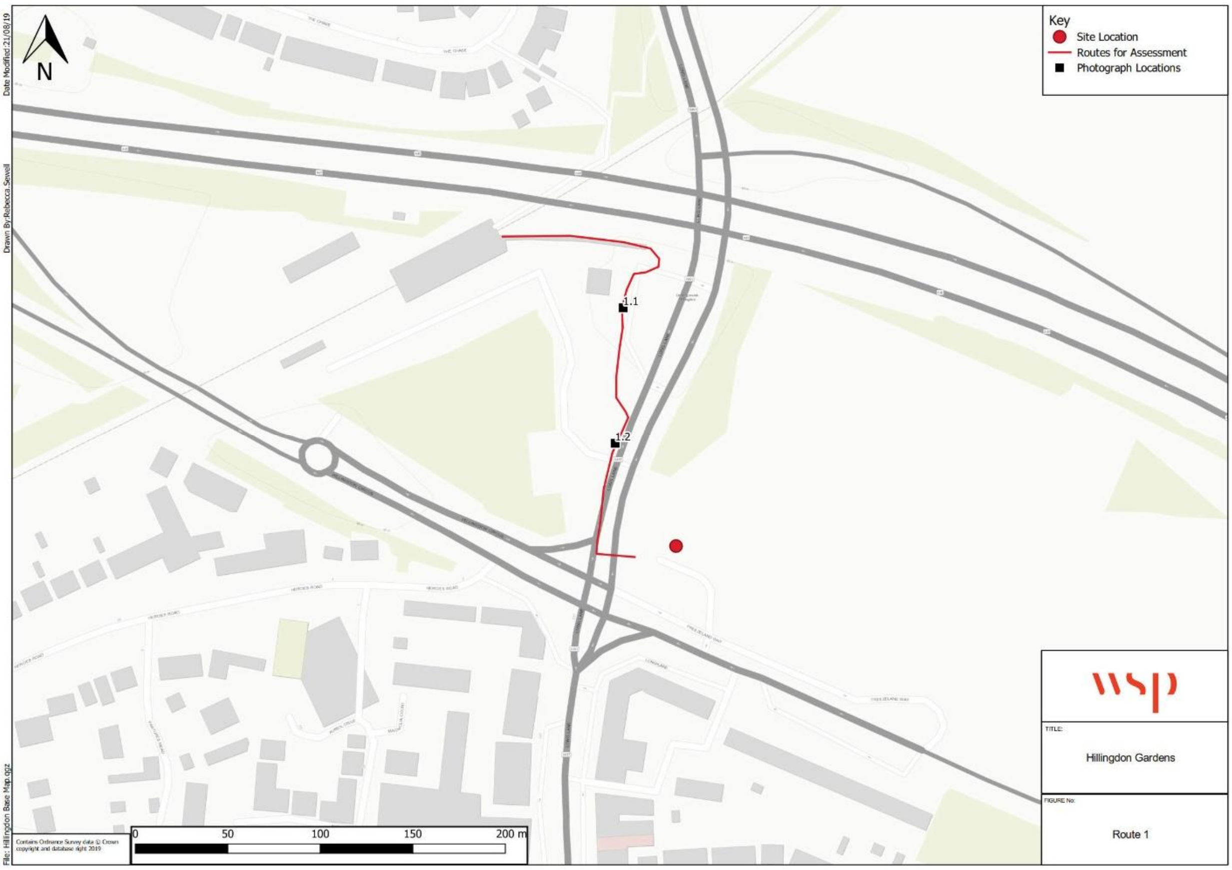
4.7.3. ‘Point of view’ photographs have been taken every 150m along each route, and related back to each of the following Healthy Streets indicators:

- Clean air
- People feel safe
- Not too noisy
- Easy to cross
- Places to stop and rest
- Shade and shelter
- People feel relaxed
- Things to see and do

Journey 1 – Hillingdon Station

4.7.4. **Figure 4-9** shows the route towards Hillingdon Station via Hillingdon Circus and Long Lane. The associated photos are included at **Appendix I**.

Figure 4-9: Route towards Hillingdon Station



4.7.5. The journey is reviewed against each Healthy Streets indicator in **Table 4-1**.

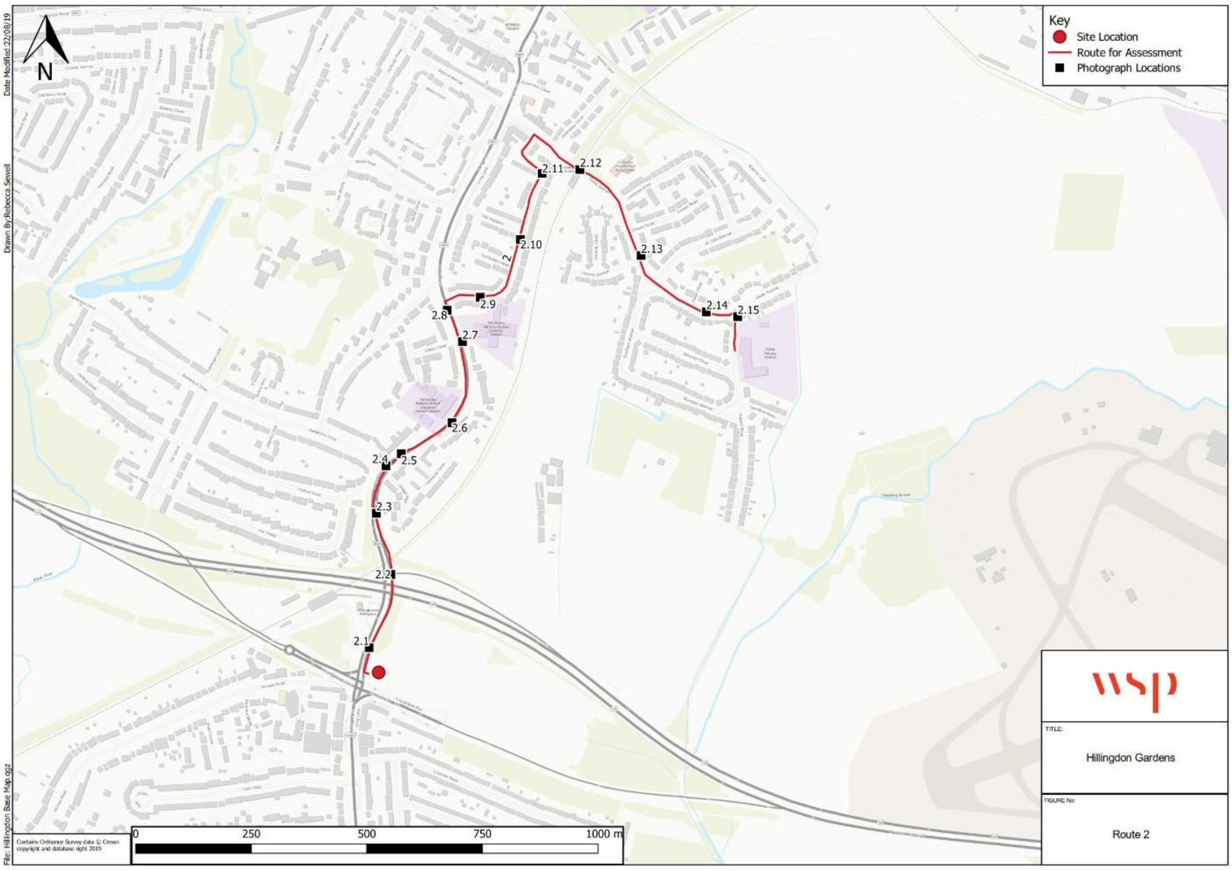
Table 4-1: Healthy Streets analysis of the route towards Hillingdon Station

Healthy Streets indicator	Observations	Areas for improvement
Clean air	Route is mostly offset from the carriageway, with trees and foliage present on the route.	There is no area for improvement.
People feel safe	Much of the footway is segregated from the main highway. Footway is of sufficient width, and presence of guard railing at the southern extent segregates pedestrians from traffic.	There is no area for improvement.
Not too noisy	On site observations it was noted there was noise due to the high traffic flows along Long Lane which joins onto the A40 east bound.	Improvements would be achieved through uptake in more sustainable travel options.
Easy to cross	There is a single signalised crossing point at the southern extent of this route which is appropriate to the nature of the road.	Due to the short nature of the route, additional crossing points are not required.
Places to stop and rest	There are benches and amenities provided by Hillingdon Station.	There is no area for improvement.
Shade and shelter	Trees and high foliage are present along this short route, there is also sheltered seating at the bus stop.	There is no area for improvement.
People feel relaxed	The pavement is of adequate width, and offset to the main carriageway in parts.	There is no area for improvement.
Things to see and do	The route is fairly short and therefore there are limited things to do, however there is a pub located directly next to Hillingdon Station.	Whilst this route is short it may benefit from signage/way finding to Hillingdon and Uxbridge centres.

Journey 2 – Glebe Primary School

4.7.6. **Figure 4-10** shows the route towards Glebe Primary School via Long Lane, Edinburgh Drive and Glebe Avenue. The associated photos are included at **Appendix I**.

Figure 4-10: Route towards Glebe Primary School



4.7.7. The journey is reviewed against each Healthy Streets indicator in **Table 4-2**.

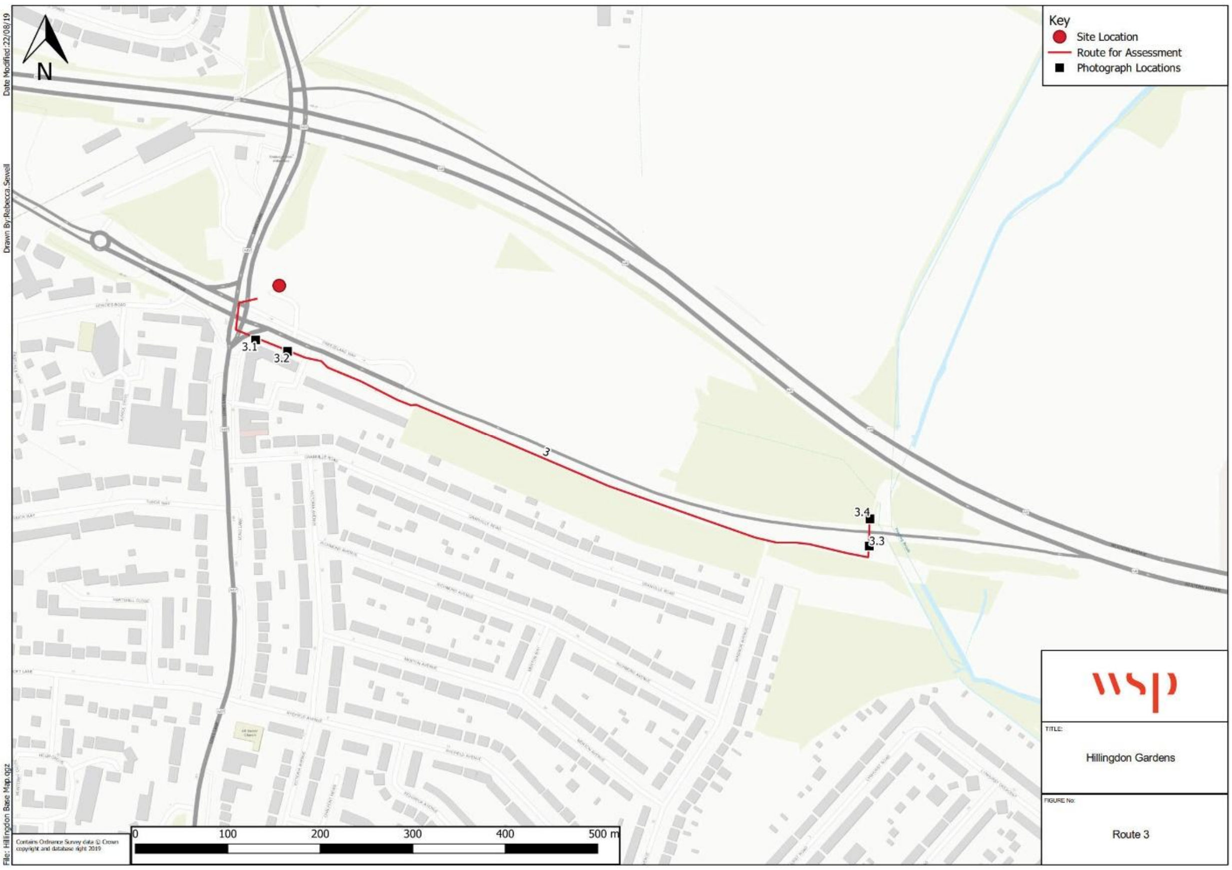
Table 4-2: Healthy Streets analysis of the route towards Glebe Primary School

Healthy Streets indicator	Observations	Areas for improvement
Clean air	This route is mainly residential with trees and foliage present along the route.	There is no area for improvement.
People feel safe	Much of the footway is of adequate width but uneven in places within the quiet residential areas. There are instances particularly on Long Lane and Glebe Avenue where the pavement is narrow and with associated vegetation growth people are travelling close to the carriageways.	General maintenance of the footway.
Not too noisy	Noise from vehicles on the A40 and Long Lane.	Improvements would be achieved through uptake in more sustainable travel options.
Easy to cross	Presence of traffic island on the B466 and an additional signalised crossing at the Douay Martys school. No determined crossing points on Edinburgh drive, which reflects the nature of the road.	There is no area for improvement.
Places to stop and rest	Limited number of places to stop and rest. However, there are some seating areas within residential estates sheltered by trees and presence of bus shelters.	This route could benefit from extra resting points.
Shade and shelter	There are trees and foliage present along the route providing shelter from sun/weather. Bus shelters and Ickenham Station which can provide shelter are also present on the route.	There is no area for improvement.
People feel relaxed	The pavement is well maintained in parts however there are sections of uneven surfaces particularly on the residential streets.	Mostly in adequate condition, general maintenance of the footway.
Things to see and do	The route is predominantly residential with little things to do, however there is a small row of shops in close proximity to Glebe Primary school. There are stopping points consisting of benches sheltered by trees within the residential estates.	There is no area for improvement.

Journey 3 – Hillingdon Trail

4.7.8. **Figure 4-11** shows the route towards the Hillingdon Trail via Freezeland Way. The associated photos are included at **Appendix I**.

Figure 4-11: Route towards Hillingdon Trail



4.7.9. The journey is reviewed against each Healthy Streets indicator in **Table 4-3**.

Table 4-3: Healthy Streets analysis of the route towards Hillingdon Trail

Healthy Streets indicator	Observations	Areas for improvement
Clean air	This route is bound to the Freezeland way at the most western extent of the route. Much of the route is segregated from the main carriageway segregated by well-established trees and foliage.	There is no area for improvement.
People feel safe	The main section of the route is offset by trees away from the live carriageway, however it was noted on site there was not sufficient lighting along the main route.	Addition of street lights would illuminate the pavement creating a more attractive environment for walking and cycling.
Not too noisy	It was noted on site there was noticeable noise from the traffic on Freezeland Way, however this did not interrupt conversation.	There is no area for improvement.
Easy to cross	Pedestrians are not required to cross whilst using this route, there is a safe underpass to the Hillingdon trail under the A40 without being exposed to the high-speed traffic.	There is no area for improvement.
Places to stop and rest	There is seating available outside Hillingdon leisure centre however there is minimal provision on the main route adjacent to the A40.	There is no area for improvement.
Shade and shelter	The majority of the route is sheltered by well-established trees and the underpass connection to the Hillingdon Trail also provides shelter from the weather.	There is no area for improvement.
People feel relaxed	The main section of the route is in good condition with the presence of trees and foliage making it an attractive environment. Despite the high flow of traffic on the adjacent A40 there is sufficient segregation between the two routes.	There is no area for improvement.
Things to see and do	The western extent of this route connects to Long Lane which hosts several shops and services. This route also leads to the Hillingdon Trail in the east.	There is no area for improvement.

Journey 4 – Oak Farm Primary School via Long Lane

4.7.10. **Figure 4-13** shows the route towards Oak Farm Primary School via Long Lane and Windsor Avenue. The associated photos are included at **Appendix I**.

Figure 4-12: Route towards Oak Farm Primary School

4.7.11. The journey is reviewed against each Healthy Streets indicator in **Table 4-4**.

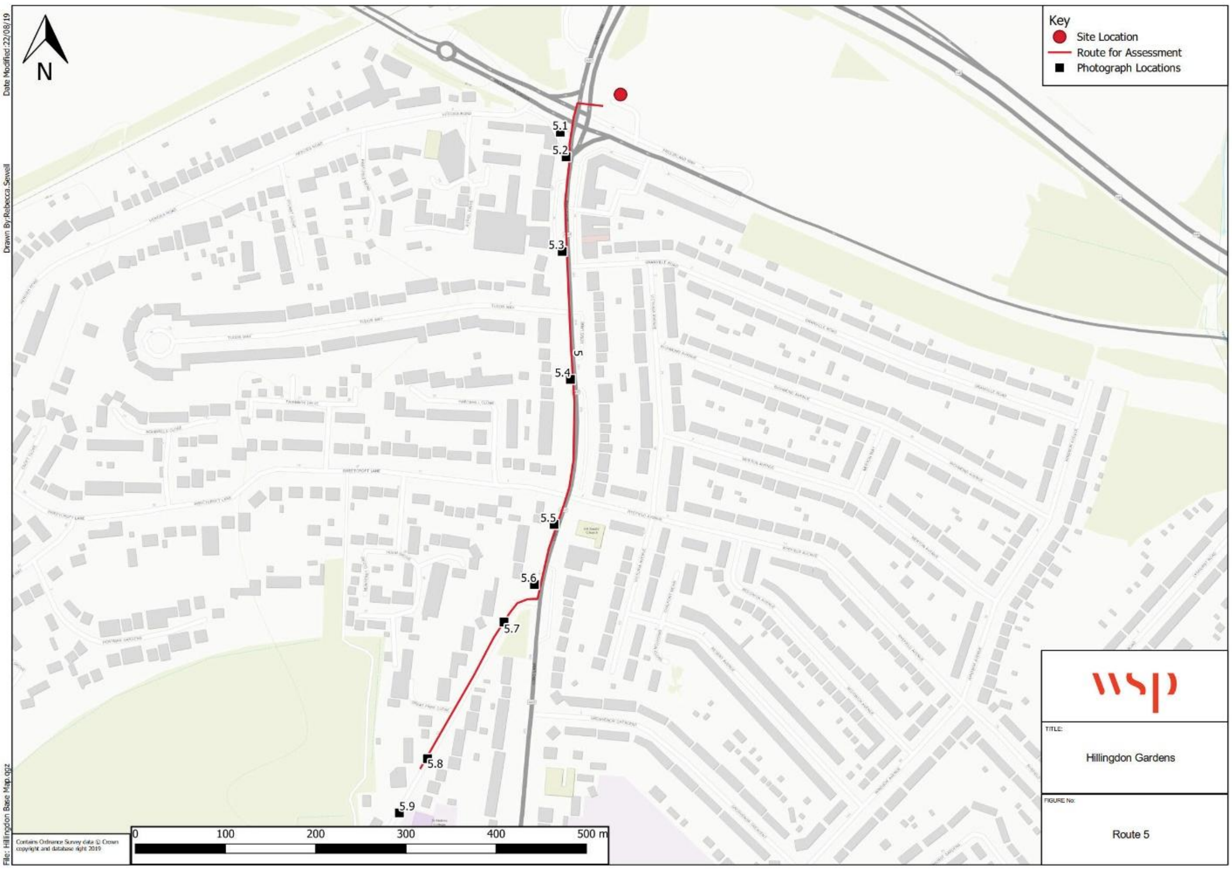
Table 4-4: Healthy Streets analysis of the route towards Oak Farm Primary School

Healthy Streets indicator	Observations	Areas for improvement
Clean air	Vehicle dominance is evident on this route, with standstill traffic frequent due to the signalised cross roads at the most northerly section of this route and at additional points down Long Lane.	Improvements can be achieved through promotion of sustainable travel options to encourage residents/employees to travel in a more sustainable manner.
People feel safe	The speed limit of the route is 30mph. For most of the route the footways are fairly wide however there are multiple occasions where objects are restricting the footway such as vegetation, planting, litter and lampposts which may force pedestrians and vulnerable users closer to the carriageway.	Ensure vegetation is well maintained, and bins and litter are not overflowing which encroach the footway but also create an unpleasant walking environment.
Not too noisy	On site observations it was noted there was noise created from the passing traffic, as Long Lane is a key route through Hillingdon, however there was little noise noted on Windsor Avenue which is a quieter residential road.	Promotion of sustainable travel options.
Easy to cross	There are a range of crossing facilities along the entirety of the route with signalised junctions located at busier sections of the route and multiple zebra crossings located at various points towards Windsor Avenue.	There is no area for improvement.
Places to stop and rest	There are a small number of benches present at certain points along this route, with additional cafes/restaurants towards Hillingdon Station.	There is potential to increase informal seating along the route.
Shade and shelter	There is tree coverage at multiple locations along this route.	There is no area for improvement.
People feel relaxed	Whilst there is an established footway along the route. The footway surface is of mixed quality, with instances of uneven surfaces and narrow at points which is further restricted by litter, lampposts and planters obstructing the footway.	Ensure vegetation is well maintained, and bins and litter are not overflowing. General maintenance of the footway.
Things to see and do	As mentioned, the northern section of this route benefits from substantial levels of active frontage, signage and opportunities to stop and break up this journey, the southern extent is predominantly residential with limited things to do.	There is no area for improvement.

Journey 5 – Oakland Medical Centre

4.7.12. **Figure 4-13** shows the route towards Oakland Medical Centre via Long Lane and Parkway. The associated photos are included at **Appendix I**.

Figure 4-13: Route towards Oakland Medical Centre



4.7.13. The journey is reviewed against each Healthy Streets indicator in **Table 4-5**.

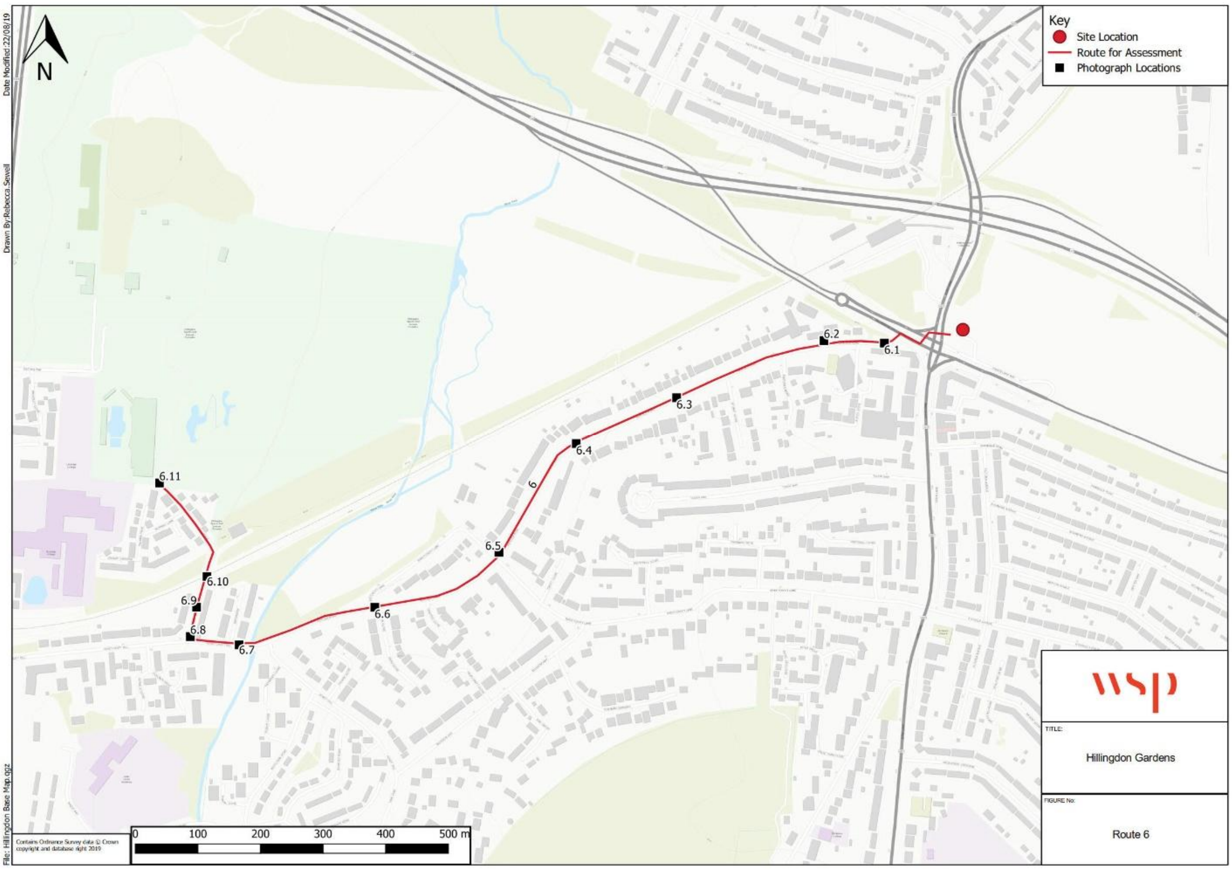
Table 4-5: Healthy Streets analysis of the route towards Oakland Medical Centre

Healthy Streets indicator	Observations	Areas for improvement
Clean air	The route is aligned with established trees and foliage. Southern sections of this route pass through residential streets which are of a quieter nature.	There is no area for improvement.
People feel safe	The footway is not of consistent width along the entirety of the route, however at narrow sections there are grass verges present segregating the footway from the main carriageway. The entrance to Oakland Medical Centre however lacks an established footway.	Ensure vegetation is well maintained, and general maintenance of the footway. There is potential to widen footway onto grass verges in parts.
Not too noisy	It was noted from the site observation there was levels of noise pollution resulting from passing vehicles and vans, however this was not an issue on the most southern section of the route at Parkway, a quiet residential street.	There is no area for improvement.
Easy to cross	There are a range of crossing facilities along the entirety of the route with signalised junctions located at busier sections of the route and multiple zebra crossings located at various points towards Parkway. However, it was noted there was not always sufficient dropped kerb and tactile paving provision on the side roads.	Ensure there is sufficient tactile paving provision on the side roads.
Places to stop and rest	At the northern extent of this route there is a small collection of local services and amenities including a restaurant and café, were no obvious resting points on this route. There were no additional resting points identified on Long Lane towards Parkway GP.	Where appropriate, resting points could be improved.
Shade and shelter	Active frontage including shops and cafes provide many opportunities for shelter if necessary. The route is lined by established trees providing numerous locations for shade.	Where appropriate resting points could be improved.
People feel relaxed	The footway is not of consistent quality throughout the route, there are instances where the footway narrows, however grass verges segregate the narrow path from the live carriageway.	There is no area for improvement.
Things to see and do	The route is largely residential to the south, with limited things to do, however towards Hillingdon Station there is levels of active frontage, signage and opportunities to stop and break up the journey.	There is no area for improvement.

Journey 6 – Hillingdon Sports Centre

4.7.14. **Figure 4-14** shows the route towards Hillingdon Sports Centre via Hercies Road and North Way. The associated photos are included at **Appendix I**.

Figure 4-14: Route towards Hillingdon Sports Centre



4.7.15. The journey is reviewed against each Healthy Streets indicator in **Table 4-6**.

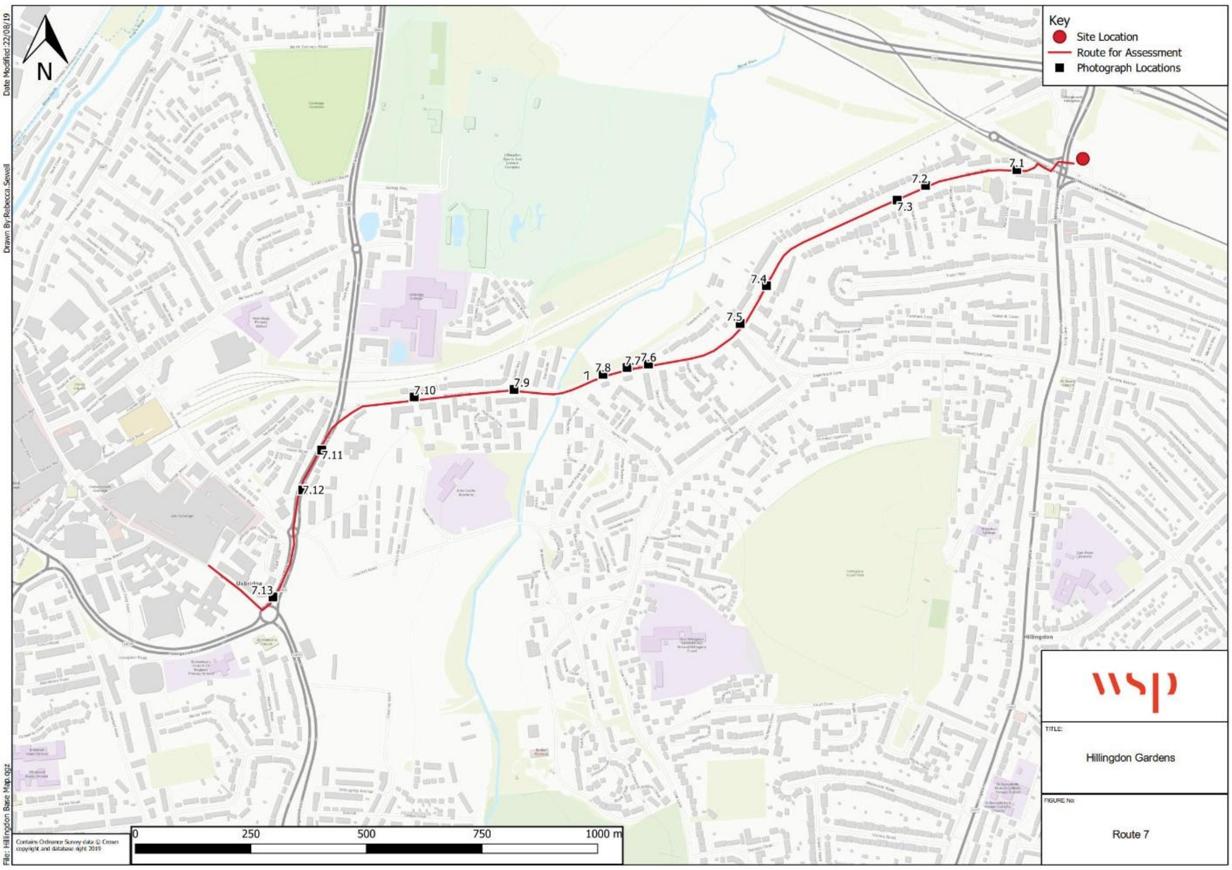
Table 4-6: Healthy Streets analysis of the route towards Hillingdon Sports Centre

Healthy Streets indicator	Observations	Areas for improvement
Clean air	This route is mainly residential and lined with well-established trees.	There is no area for improvement.
People feel safe	Substantial footways are provided throughout the route with the exception of North Way as pedestrians are force to cross due to the lack of footway. There are instances where vegetation encroaches onto the pavement restricting the width of the footway.	Ensure vegetation is well maintained. There is limited space to extend footway on North Way.
Not too noisy	It was noted from the site observation there was levels of noise pollution resulting from passing vehicles and vans, however this did not interrupt conversation.	Improvements can be achieved through promotion of sustainable travel options.
Easy to cross	This route provides numerous crossing facilities for pedestrians, majority of which are pedestrian refuges which reflect the nature of the traffic.	There is no area for improvement.
Places to stop and rest	There are several bus shelters located along this route which provide a place to stop and rest.	There is no area for improvement.
Shade and shelter	The route offers substantial tree coverage and sheltered seating at bus stops.	There is no area for improvement.
People feel relaxed	There is adequate footway provision along the entirety of the route, however there are multiple instances of vegetation encroaching on the footway and uneven surfaces.	Ensure vegetation is well maintained. General maintenance of the footway.
Things to see and do	This route is largely residential with a handful of amenities towards Hillingdon Underground Station.	There is no area for improvement.

Journey 7 – Uxbridge town centre

4.7.16. **Figure 4-15** shows the route towards Uxbridge town centre via Hercies Road and B483 Park Road. The associated photos are included at **Appendix I**.

Figure 4-15: Route towards Uxbridge town centre



4.7.17. The journey is reviewed against each Healthy Streets indicator in **Table 4-7**.

Table 4-7: Healthy Streets analysis of the route towards Uxbridge town centre

Healthy Streets indicator	Observations	Areas for improvement
Clean air	The majority of this route largely consists of residential streets with trees present, however this significantly reduces towards Uxbridge town centre.	Potential to introduce more trees/greenery towards Uxbridge.
People feel safe	Footways are provided along the entirety of the route; however, there are instances of uneven surfaces.	General maintenance of the footway.
Not too noisy	It was noted from the site observation there was levels of noise pollution resulting from passing vehicles and vans, this was an issue on Park Road.	Improvements can be achieved through promotion of sustainable travel options.
Easy to cross	There are several island refuges along Honeycroft Hill to Hillingdon. There are limited places to cross at Park Road due to the nature of the road, however there is signalised junctions and an underpass providing access to Uxbridge town centre.	There is no area for improvement.
Places to stop and rest	There are numerous services and amenities at Uxbridge to provide a place to stop and rest in addition to bus shelters present along the route.	There is no area for improvement.
Shade and shelter	The route is lined by established trees and several bus shelters providing numerous locations for shade.	There is no area for improvement.
People feel relaxed	Adequate footway provision is provided along the route to Uxbridge Town Centre. Site visit noted uneven surfaces in parts.	General maintenance of the footway.
Things to see and do	The route is largely residential. There are a number of cafes, shops and restaurants at the most south-western end of the route at Uxbridge town centre. There is an additional pub and handful of amenities on park road.	There is no area for improvement.

5 TRIP GENERATION

5.1 INTRODUCTION

5.1.1. This chapter will examine the number of trips generated by the proposed development onto the London-wide network. This approach has been agreed with TfL.

5.2 METHODOLOGY

5.2.1. The trip generation methodology at the proposed development assumes that there will be a total of 514 residential units, as well as a small offering of commercial / retail units. It is anticipated that the trip generation associated with these commercial / retail units will be negligible and trips will likely take place on foot generated by existing residents / employees in the local area. As such, the trip generation exercise will focus solely on forecasting the residential trip generation. This approach has already been agreed with TfL.

5.2.2. In order to forecast an accurate trip generation associated with the proposed development, the TRICS database has been utilised for comparable developments. Following the TfL pre-application meeting, the requirements were revised using the following criteria:

- New-build high-density development
- Similar number of residential units (80-700 units)
- Similar parking ratio (0.25-0.75)
- Outer London location
- Similar PTAL score (2-3)
- Surveyed outside school holidays

5.2.3. Three analogous sites, surveyed in 2017, have been identified and agreed with TfL, as summarised in **Table 5-1**.

Table 5-1: TRICS site selection

Site	Location	No. units	Parking ratio	PTAL rating
EG-03-M-06	Southall, Ealing	143	0.63	3
HO-03-C-02	Brentford, Hounslow	86	0.74	3
HO-03-C-03	Brentford, Hounslow	150	0.71	2
Average	**N/A**	**126**	**0.69**	**2/3**

5.2.4. These sites, though not directly comparable with the proposed development with regards to number of dwellings or parking ratio, are recently built developments in similar outer London locations that are considered representative of the forthcoming scheme.

5.3 TRIP RATES

5.3.1. The trip rates associated with the above sites is shown in **Table 5-2** and in **Appendix J**.

Table 5-2: TRICS trip rates

Mode	AM Peak: 08:00-09:00			PM Peak 17:00-18:00		
	In	Out	Total	In	Out	Total
Underground	0.006	0.066	0.071	0.012	0.014	0.026
Bus	0.015	0.133	0.148	0.065	0.020	0.085
Motorcycle	0.002	0.007	0.009	0.004	0.002	0.006
Car Driver	0.043	0.146	0.189	0.099	0.049	0.147
Car Passenger	0.038	0.072	0.110	0.065	0.037	0.102
Bicycle	0.004	0.022	0.026	0.008	0.002	0.010
Foot	0.064	0.171	0.234	0.066	0.082	0.148
Total	**0.171**	**0.614**	**0.785**	**0.318**	**0.206**	**0.524**

5.3.2. To account for the lower parking ratio at the proposed development, we propose to reassign 20% of car driver and 20% of car passenger to more sustainable (non-car) modes. It is proposed that 7.5% of these trips are allocated to each of London Underground and local bus services, and 2.5% each to walking and cycling. This split has been agreed with TfL following a pre-application meeting. The revised trip rates following this adjustment are shown in **Table 5-3**.

Table 5-3: Proposed trip rates

Mode	AM Peak: 08:00-09:00			PM Peak 17:00-18:00		
	In	Out	Total	In	Out	Total
Underground	0.012	0.082	0.093	0.024	0.020	0.045
Bus	0.021	0.149	0.170	0.077	0.026	0.103
Motorcycle	0.002	0.007	0.009	0.004	0.002	0.006
Car Driver	0.034	0.116	0.151	0.079	0.039	0.118
Car Passenger	0.030	0.058	0.088	0.052	0.030	0.082
Bicycle	0.006	0.027	0.033	0.012	0.004	0.016
Foot	0.066	0.176	0.241	0.070	0.084	0.154
Total	**0.171**	**0.614**	**0.785**	**0.318**	**0.206**	**0.524**

5.4 TRIP GENERATION

5.4.1. The forecast trip generation for the proposed development, comprising 514 units, is shown in **Table 5-4**.

Table 5-4: Forecast trip generation – 514 units

Mode	AM Peak: 08:00-09:00			PM Peak 17:00-18:00		
	In	Out	Total	In	Out	Total
Underground	6	42	48	12	11	23
Bus	11	77	88	40	13	53
Motorcycle	1	3	4	2	1	3
Car Driver	18	60	78	41	20	61
Car Passenger	15	30	45	27	15	42
Bicycle	3	14	17	6	2	8
Foot	34	90	124	36	43	79
Total	**88**	**316**	**404**	**164**	**105**	**269**

5.4.2. The proposed development is forecast to generate 404 two-way person trips in the AM peak hour, and 269 two-way person trips in the PM peak hour. 78 of the AM trips would be by car, with 61 car trips in the PM. A total of 136 trips would be taken via public transport in the AM peak, with a total of 76 in the PM peak. 141 AM trips are forecast to be taken by active modes, which also accounts for 87 PM trips.

5.5 NET CHANGE AGAINST 2017 APPLICATION

5.5.1. For comparison, the trip generation associated with the original scheme submitted in August 2017 (on which the traffic impact assessment was based) is shown in **Table 5-5**. This methodology was agreed with TfL, and the previous scheme iteration comprised 377 units, with a car parking ratio of 0.65 spaces per dwelling.

Table 5-5: Previous trip generation forecast – 377 units

Mode	AM Peak: 08:00-09:00			PM Peak 17:00-18:00		
	In	Out	Total	In	Out	Total
Underground	9	37	47	28	15	43
Bus	8	30	37	22	12	34
Motorcycle	1	3	4	2	1	3
Car Driver	19	74	93	56	29	85
Car Passenger	2	7	9	5	3	8
Bicycle	2	8	9	6	3	9
Foot	5	19	23	14	8	22
Total	**46**	**180**	**226**	**135**	**72**	**207**

5.5.2. The net change in multimodal trip generation is outlined in **Table 5-6**.

Table 5-6: Multimodal trip generation – net change (2017 scheme vs. current scheme)

Mode	AM Peak: 08:00-09:00			PM Peak 17:00-18:00		
	In	Out	Total	In	Out	Total
Underground	-3	+5	+2	-16	-4	-20
Bus	+3	+47	+50	+18	+1	+19
Motorcycle	0	0	0	0	0	0
Car Driver	-1	-14	-15	-15	-9	-24
Car Passenger	+13	+23	+36	+22	+12	+34
Bicycle	+1	+6	+7	0	-1	-1
Foot	+29	+71	+100	+22	+35	+57
Total	**+42**	**+138**	**+180**	**+31**	**+34**	**+65**

5.5.3. As demonstrated by **Table 5-6**, the number of total person trips in the AM peak rises by 180 as a result of the proposed scheme, with an increase of 65 total person trips in the PM peak. This increase generally takes place across sustainable modes.

5.5.4. Car driver trips fall in comparison to the 2017 scheme, whilst car passenger trips increase. The car passenger trip rates used in the previous scheme are unrealistically low, and the revised car passenger trip rates appear to be more representative of the proposed development.

5.6 SERVICING

Residential

5.6.1. The residential element of the development is forecast to generate a number of servicing trips, primarily comprising deliveries of goods (including groceries) and food (takeaways).

5.6.2. No appropriate sites were found on the TRICS database, and as such, the residential servicing trip generation is based on the following two sites which are a comprehensive resource that is representative of the recent trend for increased residential servicing activity:

- Imperial Wharf (1,745 Dwellings) – 2014 survey
- Bow Quarter (773 Dwellings) – 2016 survey

5.6.3. Whilst the number of dwellings at these developments is higher than is proposed at Hillingdon Gardens, it is worth noting that this will have a negligible impact on the servicing trip rate per dwelling. These surveys identified a daily servicing trip rate of 0.170 deliveries per dwelling at Imperial Wharf and 0.122 deliveries per dwelling at Bow Quarter. The raw survey data is contained at **Appendix K**.

5.6.4. The weighted average trip rate for the daily and peak hours is shown in **Table 5-7**, together with the forecast trip generation for the 514 residential units at Hillingdon Gardens. Residential deliveries typically take place outside the morning peak hour, and occur from mid-morning onwards, including into the afternoon and evening.

Table 5-7: Residential servicing demand

Mode	LGVs	HGVs	Total
AM peak (08:00-09:00)	2	1	3
Development peak (11:00-12:00)	5	1	6
PM peak (17:00-18:00)	4	0	4
Daily	**59**	**5**	**64**

Commercial

5.6.5. Though the commercial use is still flexible, it has been assumed on a worst-case basis that the area will take the form of A3 food and beverage units, as these will generate a higher servicing demand than the other potential uses. The servicing demand associated with these uses has been extracted from TRICS. Surveys at three restaurants in outer London have been utilised to generate the servicing trip rates associated with the proposed commercial uses. The resultant servicing demand for the 1,141m^2 of commercial floorspace in Blocks 1 and 4 is shown in **Table 5-8**, whilst the trip rates are contained in **Appendix K**.

Table 5-8: Commercial servicing demand

Mode	LGVs	HGVs	Total
AM peak (08:00-09:00)	0	1	1
Development peak (11:00-12:00)	2	2	4
PM peak (17:00-18:00)	2	0	2
Daily	**16**	**6**	**22**

Combined

5.6.6. The combined servicing demand for both the residential and commercial uses is demonstrated in **Table 5-9**.

Table 5-9: Overall servicing demand

Mode	LGVs	HGVs	Total
AM peak (08:00-09:00)	2	2	4
Development peak (11:00-12:00)	7	3	10
PM peak (17:00-18:00)	6	0	6
Daily	**75**	**11**	**86**

6 LONDON-WIDE NETWORK

6.1 INTRODUCTION

6.1.1. In this section the impact of the proposed development on each element of the London-wide transport network will be assessed.

6.2 HIGHWAYS

6.2.1. As part of the Transport Assessment submitted for the 2017 application, extensive highway modelling was undertaken with TfL to assess the impact of the scheme on the highway network. The proposed development has therefore been compared against the 2017 scheme to assess if further traffic modelling is required.

6.2.2. **Table 6-1** details the net change in vehicle trip generation associated with the proposed scheme across a full day.

Table 6-1: Vehicle trip generation – net change (2017 scheme vs. current scheme)

Mode	AM peak (08:00-09:00)			PM peak (17:00-18:00)			Daily		
	In	Out	Total	In	Out	Total	In	Out	Total
2017 scheme	19	74	93	56	29	85	387	370	757
Current scheme	18	60	78	40	20	60	352	375	727
Net change	**-1**	**-14**	**-15**	**-16**	**-9**	**-25**	**-35**	**+5**	**-30**

6.2.3. As shown in **Table 6-1**, when compared with the 2017 scheme, the vehicular trip generation associated with the proposed scheme reduces marginally during both the AM and PM peak hours. Based on this, it is considered that the current scheme proposals would have a marginal benefit in terms of highway impact during peak hours when compared with the 2017 scheme. It is therefore considered that the extensive traffic impact assessment work that was undertaken during 2017 and 2018 in connection with the previous scheme and reviewed in detail by TfL remains valid for the new scheme, and therefore no additional traffic impact assessment work is required in connection with the proposed scheme. The Traffic Modelling Addendum which outlines the impact assessment is contained at **Appendix L**, whilst a Hillingdon Circus Signal Optimisation note is contained at **Appendix M**.

6.2.4. Following pre-application discussions with TfL, it was agreed that new traffic surveys would be undertaken on the highway network surrounding the site to understand whether there have been any significant changes in baseline traffic flows when compared with the 2017 traffic surveys that were undertaken in connection with the previous application on the site.

6.2.5. Traffic surveys were conducted in September 2019 to assess whether there has been any organic growth on the local highway network in the past two years. A Transport Assessment Addendum was then submitted to TfL following planning submission, and this is re-provided at **Appendix B**. The note demonstrates that the baseline traffic flows have not increased in recent years, and as such it was agreed with TfL that no further modelling or assessment be required.

6.3 PUBLIC TRANSPORT

Buses

6.3.1. Regarding local bus services in the vicinity of the site, the Proposed Development is forecast to generate an additional 87 two-way trips in the AM peak hour and 53 two-way trips in the PM peak hour. It is likely that the proposed 278 bus service would attract a significant proportion of bus trips generated by the proposed development, as it would provide a more direct connection between key local destinations such as Ruislip, Hayes and Heathrow Airport. The U2 would also attract a significant proportion of bus trips, whilst there will be a small number of trips associated with the Oxford Tube also. **Table 6-2** outlines the number of additional trips associated with the development and how these have been distributed across the available bus services (U2 and Oxford Tube, as well as the forthcoming 278 service).

Table 6-2: Impact on bus services

Mode	AM peak (08:00-09:00) Two-way journeys	PM peak (17:00-18:00) Two-way journeys
Total journeys	88	53
These will be distributed accordingly:		
U2	38	22
278	40	25
Oxford Tube	10	6

6.3.2. The additional demand for bus use generated by the development at full build out would equate to up to 10 additional passengers per bus on the 278 at peak times, and 6 additional passengers per bus on the U2 at peak times. As such, the impact of the development on local bus services would be negligible.

LUL

6.3.3. London Underground services currently run at 17 per hour in each direction in the AM peak; eastbound (to Central London) and westbound (to Uxbridge). In the PM peak 12 trains travel in an eastbound direction and 17 in a westbound direction. The trips to / from Central London are expected to be tidal in nature, and it has therefore been assumed that 90% of all outbound trips will be made towards Central London during the AM peak and 90% of inbound trips made from Central London during the PM peak. Indeed, it is also forecast that more trips will use the Metropolitan Line as this provides a quicker, more direct service in to Central London. The trips have therefore been split assuming 75% of trips are made on the Metropolitan Line and 25% of trips are made on the Piccadilly Line.

6.3.4. The new development will result in an additional 48 tube trips in the AM peak and 23 in the PM peak. **Table 6-3** outlines the number of additional trips associated with each service based on the assumptions outlined above.

Table 6-3: Impact on Underground services

Mode	AM peak (08:00-09:00) Two-way journeys	PM peak (17:00-18:00) Two-way journeys
Total journeys	48	23
These will be distributed accordingly:		
Metropolitan – EB	33	1
Metropolitan – WB	3	16
Piccadilly – EB	9	1
Piccadilly – WB	3	5

6.3.5. There are forecast to be 33 outbound trips heading eastbound on the Metropolitan Line in the AM peak hour and 16 inbound trips heading westbound in the PM peak hour.

6.3.6. There are 9 eastbound Metropolitan line services in the AM and 8 westbound services in the PM. This translates to approximately 4 additional trips per service generated by the development, the impact of which would be negligible.

6.3.7. Hillingdon benefits from being located one stop from the end of the Piccadilly and Metropolitan lines, meaning passengers are always able to board trains towards Central London during the peak hours, the majority of which would have access to a seat for their journey.

Station capacity assessment

6.3.8. As requested by TfL, a station capacity assessment has been undertaken, to assess the impact of the proposed development on the operation of Hillingdon Station. As per TfL's advice, the baseline situation for the assessment has been taken from TfL's Rolling Origin and Destination Survey (RODS) database, with the assessment following TfL's Station Planning Guidelines.

6.3.9. TfL have requested that the cumulative impact of other proposed developments in the local area are also taken into account as part of this assessment. The developments considered are outlined in **Table 6-4**.

Table 6-4: Committed developments

Planning reference	Development	Comments
N/A	Office development at Hillingdon Circus	Granted permission in 1993 and, whilst never built, was lawfully implemented by virtue of the construction of a mini-roundabout. A revised planning application was granted permission in 2002, but was never implemented and has therefore expired. As such, this development has been excluded from the assessment.
4860/APP/2018/3719	Housing development at Hillingdon Circus	This development was granted approval in February 2019 and will be considered as part of the assessment.
585/APP/2009/2752	Mixed-use development at RAF Uxbridge	This development is situated in close proximity to Uxbridge Station, and it is anticipated that Underground trips to the development would take place from here, rather than Hillingdon Station. As such, this development has been excluded from the assessment.
38402/APP/2008/2733	Housing and retirement village at RAF West Ruislip	This development has been built out and is situated near to West Ruislip and Ickenham Stations. As such, this development has been excluded from the assessment.
3505/APP/2009/2711	Abbotsfield School and Swakeleys School expansion	This development was completed in 2017 and has therefore been accounted for in the baseline flows. As such, this development has been excluded from the assessment.

6.3.10. The Transport Assessment for the housing development at Hillingdon Circus states that 7.8% of trips are taken by London Underground. For the 36 units proposed, the trip generation is outlined in **Table 6-5**.

Table 6-5: Housing development at Hillingdon Circus - trip generation

Mode	AM peak (08:00-09:00)			PM peak (17:00-18:00)		
	In	Out	Total	In	Out	Total
Trip rate	0.157	0.673	0.830	0.357	0.093	0.450
Total person trips (36 units)	6	24	30	13	3	16
Underground trips (7.8% of total)	0	2	2	1	0	1

6.3.11. The cumulative schemes will result in an increase of two London Underground trips in the AM peak period, and one trips in the PM peak period.

6.3.12. It is anticipated that all trips to and from the proposed development will arrive at the station via the bridge into the station. As such, the assessment focuses on the pedestrian flows through the bridge into the station, as well as the number of gate-line ticket barriers.

6.3.13. The results of the station capacity assessment are shown in **Table 6-6**, with the full assessment detailed in **Appendix N**.

Table 6-6: Station capacity assessment

Mode	Baseline	Baseline + cumulative	Baseline + cumulative + development
Gate-line requirement	3	3	3
Bridge width requirement	1.9m	1.9m	1.9m
Bridge level of service	B	B	B

6.3.14. The assessment shows that to accommodate the flows along the bridge into and out of the station, a width of 1.9m is required in all three scenarios. The bridge is c.4.5m wide and therefore operating well within capacity. The gate-line provision is also sufficient to accommodate the additional demand generated from the proposed development, with four ticket barriers currently in place at the station.

6.4 WALKING AND CYCLING

6.4.1. The proposed development is forecast to generate an additional 17 cycling and 124 pedestrian trips in the AM peak hour and 8 cycling and 79 pedestrian trips in the PM peak hour. These trips are typically expected to be over a short distance and will be dispersed around the immediate road network. This number of additional trips is not anticipated to have a significant impact on local pedestrian and cycling facilities.

6.4.2. The majority of pedestrians and cyclists will have to cross Hillingdon Circus based on the key desire lines towards Hillingdon LUL station and the local amenities along Long Lane to the south of the junction. As stated in Section 5, improvements to the crossing facilities at Hillingdon Circus are proposed in order to better facilitate pedestrian and cycling movements through the junction.

6.5 PROPOSED DESIGN AND MITIGATION

6.5.1. The impact of the proposed development on the capacity and operation of each transport network in the surrounding area is expected to be negligible. Nonetheless, management plans are proposed to regulate the servicing and deliveries and also to encourage sustainable travel. The proposed development is forecast to result in a negligible impact on the surrounding transport networks.

6.5.2. Nonetheless, management plans are proposed to regulate the servicing and deliveries and encourage users of the development to travel sustainably. Junction improvements are also proposed at Hillingdon Circus, as outlined in **Section 3.7**.

ATZ conclusions

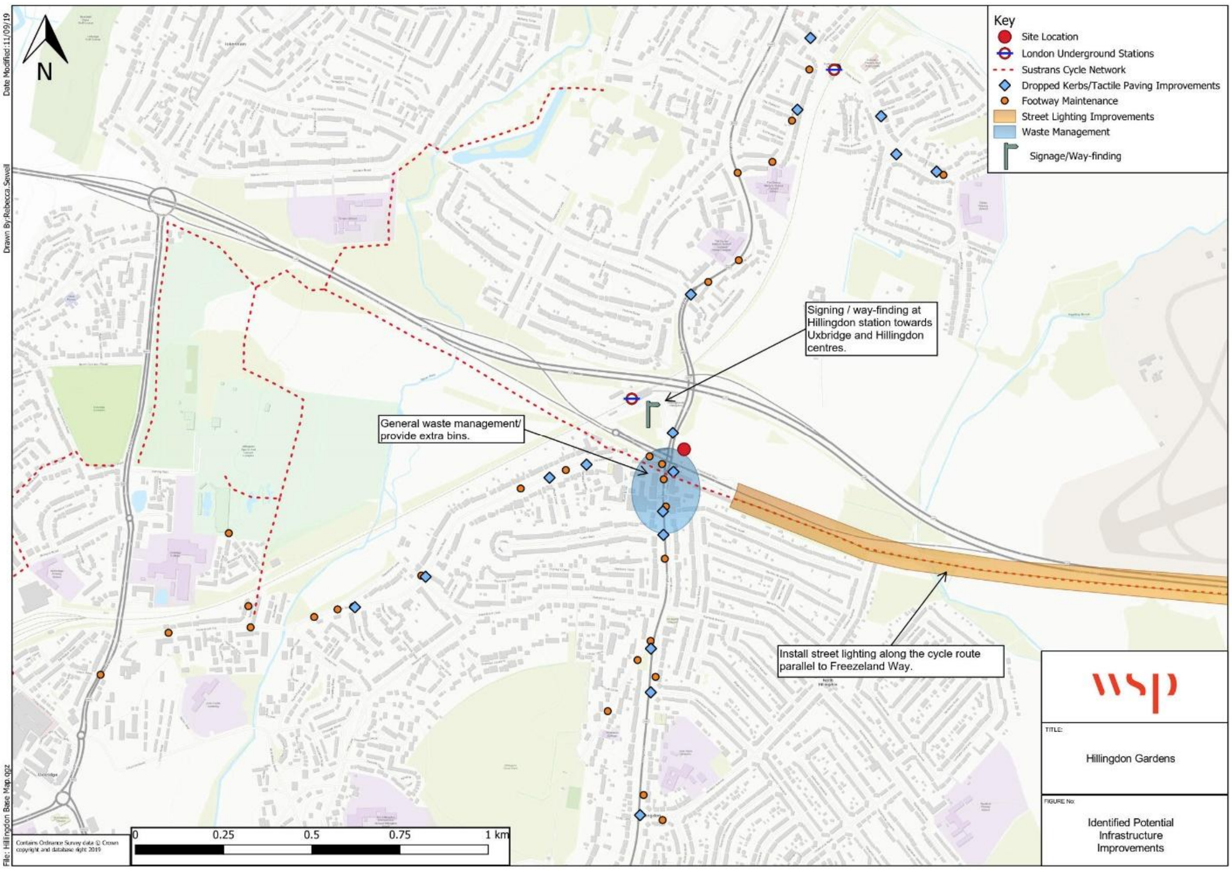
6.5.3. The conclusions from the ATZ are that along the key active travel routes the following improvements could be considered:

- Signing / way-finding at Hillingdon Station towards Uxbridge and Hillingdon centres.
- Street lighting along the cycle route running parallel to Freezeland Way towards the Hillingdon Trail.
- Providing additional bins along Long Lane south of the site.
- Provide tactile paving at crossings of side roads running into Long Lane (south of the site).
- General maintenance of a number of footways:

  Long Lane (north)
  Hercies Road
  Long Lane (south)
  Glebe Avenue

6.5.4. The location of each potential improvement highlighted within the ATZ is shown in **Figure 6-1** and reproduced at **Appendix I**.

Figure 6-1: ATZ - potential improvements



7 MANAGEMENT PLANS

7.1 FRAMEWORK TRAVEL PLAN

7.1.1. A workplace and residential framework Travel Plan accompanies the Transport Assessment and is included at **Appendix C** detailing the forecast travel patterns and clearly setting mode share objectives, measures to be implemented and suggested monitoring.

7.2 DELIVERIES AND SERVICING PLAN

7.2.1. A framework Deliveries and Servicing Plan accompanies the Transport Assessment and is included at **Appendix D**, setting the principles for the management of the development deliveries.

7.3 CAR PARKING MANAGEMENT PLAN

7.3.1. A Car Parking Management Plan accompanies the Transport Assessment and is included at **Appendix E**, outlining the operation and management of the car park at the proposed development.

8 TFL CONSTRUCTION LOGISTICS PLAN

8.1 INTRODUCTION

8.1.1. This chapter provides details of the Construction Logistics Plan, which is anticipated to be secured by condition, once a principal contractor has been appointed and further information is available.

8.1.2. This report has been prepared in accordance with TfL's 2017 best practice guidance for the production of CLPs. It provides a framework to better manage all types of freight movement to and from the construction site.

8.1.3. This CLP seeks to minimise the impacts of construction on the surrounding highway network. This document is concerned with the highways and transport elements of construction and therefore should be read in conjunction with the Principal Contractors Construction Method Statement and Construction Management Plan which considers other matters not directly relating to transport and logistics.

8.1.4. This CLP seeks to support the achievement of the following objectives:

- To demonstrate that construction materials can be delivered, and waste removed in a safe, efficient and environmentally friendly way.
- To identify deliveries that can be reduced, re-timed or even consolidated, particularly during peak periods.
- To help cut congestion on London's roads and ease pressure on the environment.
- To encourage construction workers to travel to the site by sustainable or active travel modes.
- To improve vehicle and road user safety.
- To encourage the use of greener vehicles.
- To improve the reliability of deliveries to the site.
- To reduce fuel costs and carbon emissions for freight operators.

8.2 POLICY CONTEXT

National Planning Policy Framework (2019)

8.2.1. The National Planning Policy Framework (NPPF) promotes the use of sustainable transport throughout the UK, safe road design, and the efficient and sustainable delivery of goods and supplies.

The Mayors Transport Strategy (2018)

8.2.2. Freight and servicing is frequently mentioned throughout The Mayors Transport Strategy which contains a strategy considering all methods of freight delivery including road, rail, pipeline, water, bicycles and air. The document especially highlights the importance of the London Freight Plan, DSPs, CLPs and FORS to encourage improved efficiency and provide a framework for incentivisation and regulation.

8.2.3. In particular, Proposal 16 states that:

- *"The Mayor, through TfL, and working with the boroughs and members of the Freight Forum, will improve the efficiency of freight and servicing trips on London's strategic transport network by:*

a) *Identifying opportunities for moving freight on to the rail network where this will not impact on passenger services and where the benefits will be seen within London.*
b) *Increasing the proportion of freight moved on London's waterways.*
c) *Reviewing the potential benefits of a regional freight consolidation and distribution network and completing the network of construction consolidation centres in London."*

The London Plan (2016)

8.2.4. The London Plan makes specific reference to CLPs as a way of making more efficient use of the road network. Chapter 6 of the London Plan (policies 6.3 and 6.14) encourages developers to submit CLPs and consider sustainable movement of freight. CLPs are secured for applications which are referable to the Mayor, where there are construction impacts. In addition, the production of CLPs is encouraged on all other applications where there are construction issues.

The Draft London Plan (2018)

8.2.5. The Draft London Plan is the latest emerging policy for London and is a material consideration in planning decisions. The Draft London Plan echoes the sustainable freight promotion of the 2016 London Plan, however it encourages developers to also consider all reasonable endeavours to the utilisation of non-road vehicle modes in the delivery of goods and supplies to sites.

The London Freight Plan (2007)

8.2.6. The vision for sustainable freight distribution in London over the next five to ten years is for:

- *"…the safe, reliable and efficient movement of freight and servicing trips to, from, within, and, where appropriate, through London to support London's economy, in balance with the needs of other transport users, the environment and Londoners' quality of life".*

8.2.7. The Plan identifies FORS, DSPs, CLPs and the Freight Information Panel (FIP) as key projects for delivering freight more sustainably in London.

Traffic Management Act (2004)

8.2.8. Part 2 of the Traffic Management Act sets out the responsibility of local authorities to manage traffic networks within their geographical area of responsibility. This includes efficient use of the network and the requirement to take measures to avoid contributing to traffic congestion. Part 5 outlines the responsibility of local authorities in Greater London to manage the strategic route network. This includes TfL's role to manage certain areas of the Greater London route network.

Freight Operator Recognition Scheme (FORS)

8.2.9. The Freight Operator Recognition Scheme (FORS) is a voluntary scheme that encourages sustainable best practice for fleet operators. FORS promotes safe working practices, legal compliance and a corporate social responsibility to improve the performance of fleet operators. The project has been developed with trade union involvement and collaboration with freight operators and the facility of sharing information.

8.2.10. Operators join the scheme as members, with tiers of membership reflecting freight operator achievements. It will offer members incentives to increase the sustainability of their operations and to develop their skills, including best practice development for:

- Training to improve safety and reduce CO2 and emissions.
- Maintenance, to improve safety and reduce fuel consumption, CO2 and emissions.

- Management of road risk to improve safety, particularly for pedestrians and cyclists.
- Fuel efficiency, to save costs and reduce CO2 and emissions.
- The use of low-carbon engine technologies such as hybrid and electric vehicles, hydrogen fuel cells and biofuels to reduce CO2 and emissions.

8.3 CONSIDERATIONS AND CHALLENGES

HS2 construction

8.3.1. The construction of the proposed development will likely coincide with the construction of HS2 in the local area. A map in **Appendix O** identifies the HS2 construction routes and these will not overlap with the routes for the proposed development. It is assumed that construction traffic for the proposed development will access the site directly from the A40. There is likely to be some temporary displacement of traffic onto Long Lane, though HS2 Ltd has yet to disclose the forecast volume.

8.4 CONSTRUCTION PROGRAMME AND METHODOLOGY

8.4.1. The programme of construction for the proposed development has been produced with input from the client team. Construction is expected to last for 54 months and is scheduled to begin in January 2021. The building will be completed and ready for occupancy in Spring 2024. **Table 8-1** provides a high-level breakdown of the programme by construction stage.

Table 8-1: Construction phases key dates

Construction stage	Start month	End month	Duration (months)
Site setup and demolition	January 2021	March 2021	2
Sub-structure	March 2021	March 2023	24
Super-structure	April 2021	August 2023	28
Cladding	July 2021	November 2023	31
Fit-out, testing and commissioning	September 2021	April 2024	35

8.5 VEHICLE ROUTING AND ACCESS

8.5.1. It is anticipated that access to the site for construction vehicles will be via Freezeland Way. The access is adjacent to the Hillingdon Circus junction which connects the wider regional and national road network. Details of the proposed construction routing will be agreed with LBH and the relevant highway authority prior to commencement of construction work.

8.5.2. The construction routing will need to be allocated to major highway routes serving the application site and these will include the following:

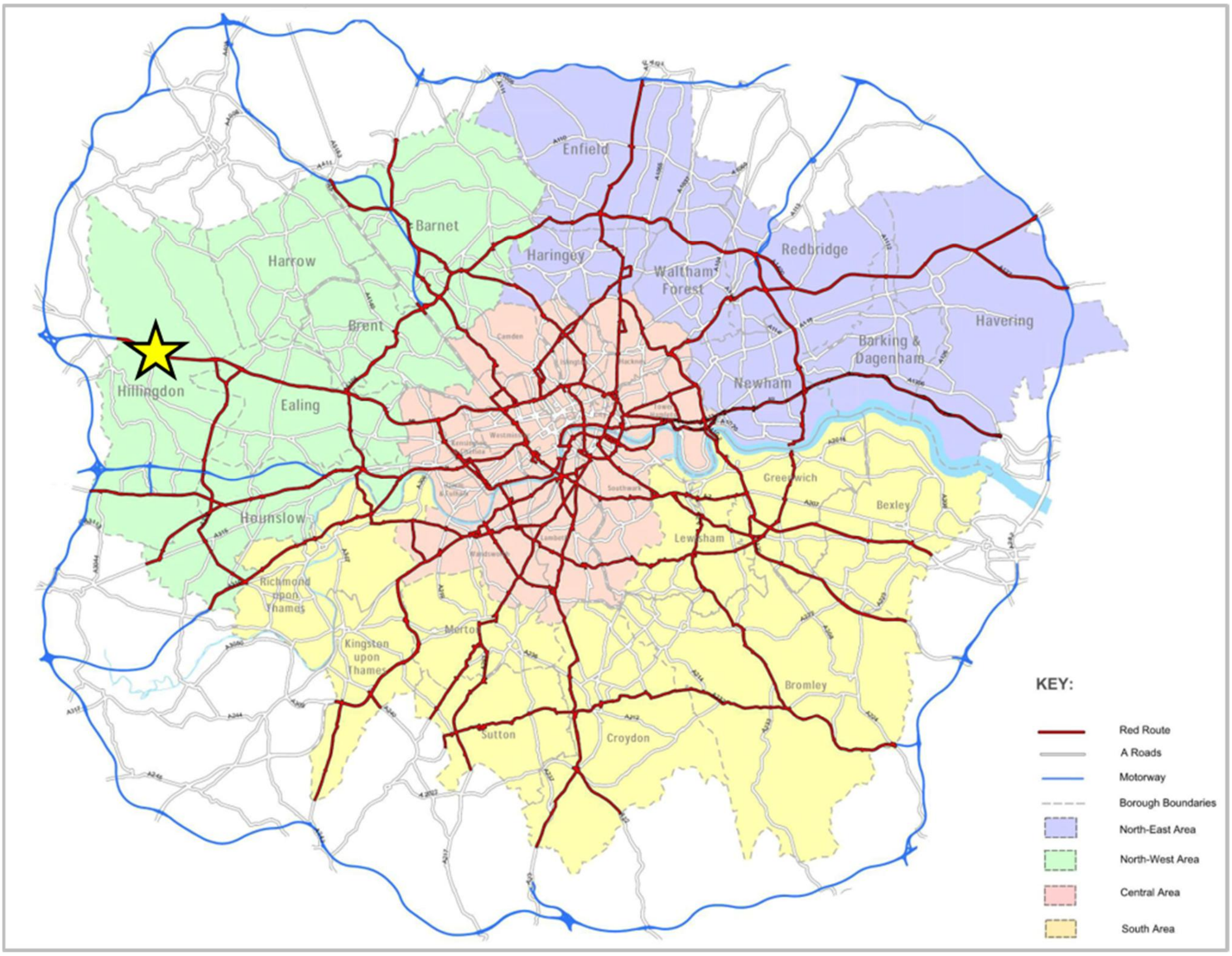
- A40 Western Avenue.
- M25 Motorway for access to the wider highway network.

8.5.3. It is envisaged that construction vehicles will be assigned to the local highway network based on anticipated HGV routing and anticipated personal vehicle routing:

- HGVs: All vehicles are routed to the A40 Avenue via Hillingdon Circus. At Hillingdon Circus, HGVs split 50% westbound and 50% northbound (to head east).
- Cars: 30% of cars arrive via the A40 Western Avenue with the remaining vehicles distributing across the local road network.

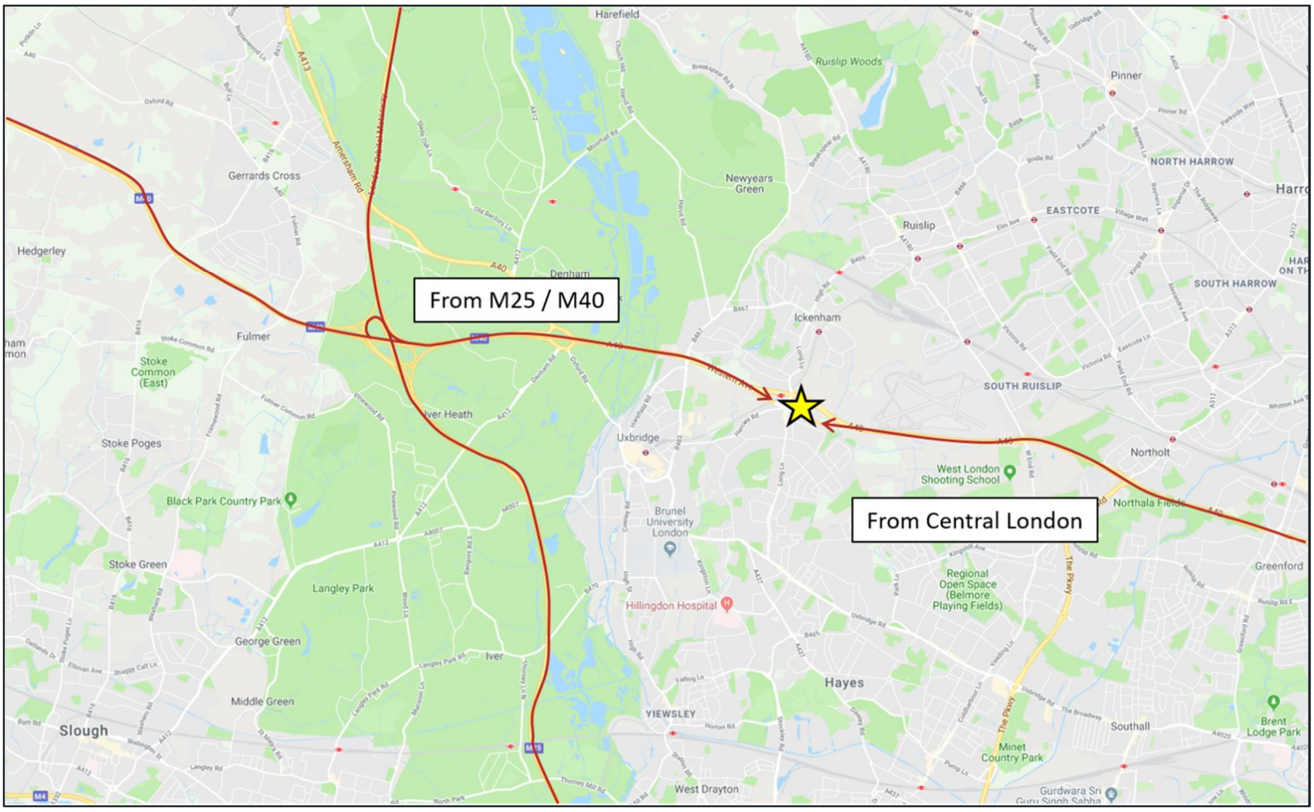
8.5.4. **Figure 8-1** shows a regional plan with the vehicle routes through London highlighted. These routes follow the Transport for London road network (TLRN) until the final approach to the site where local roads are used for access.

Figure 8-1: Regional vehicle routes



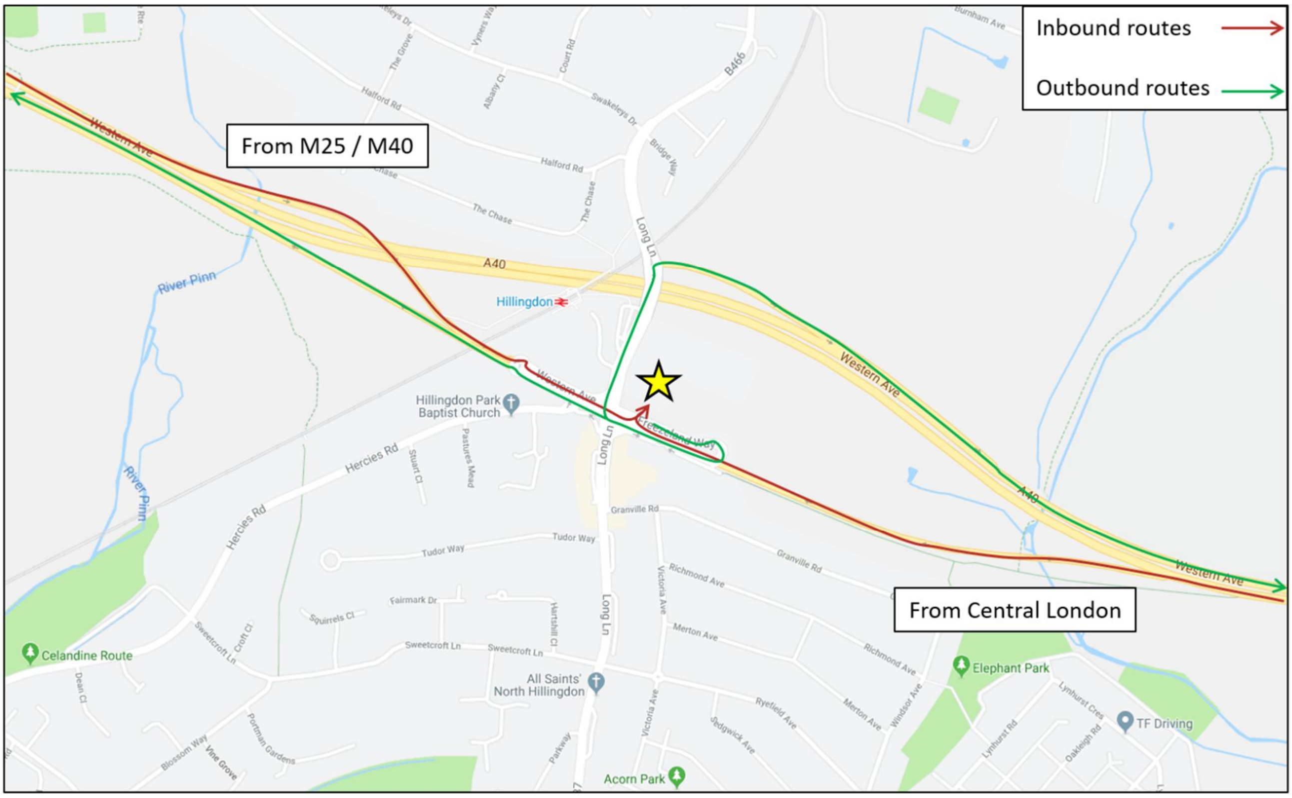
8.5.5. **Figure 8-2** shows vehicle routes to the site, taking into account local area constraints and locations with large numbers of vulnerable road users.

Figure 8-2: Local vehicle routes



8.5.6. **Figure 8-3** shows the site boundary plan and the proposed construction access.

Figure 8-3: Site access



8.6 STRATEGIES TO REDUCE IMPACT

8.6.1. The following planned measures have been identified to assist the contractor achieve the objectives of the CLP and to better manage the challenges identified. **Table 8-2** details the planned measures.

Table 8-2: Overview of planned measures

Planned measures	Committed	Proposed	Considered
Measures influencing construction vehicles and deliveries			
Safety and environmental standards and programmes	ü		
Adherence to designated routes	ü		
Delivery scheduling	ü		
Re-timing for out-of-peak deliveries		ü	
Re-timing for out-of-hours deliveries		ü	
Use of holding areas and vehicle call-off areas			ü
Use of logistics / consolidation centres			ü
Measures to encourage sustainable freight			
Freight by river			ü
Freight by rail			ü
Use of electric vehicles		ü	
Material procurement measures			
DfMA and off-site manufacturing		ü	
Re-use of material on site			ü
Smart procurement		ü	
Other measures			
Collaboration amongst other sites in the area		ü	
Implementation of a staff Travel Plan	ü		

Measures influencing construction vehicles & deliveries

Safety & environmental standards & programmes

8.6.2. We are committed to ensuring all contractor and sub-contractor vehicles arriving at site comply with sufficient safety measures and requirements relating to work related road risk.

8.6.3. It is a requirement for all vehicles and driver management practices to comply with the FORS and Construction Logistics and Community Safety (CLOCS). FORS bronze, with progression to silver within 90 days, will need to be confirmed by all sub-contracted transport/haulage providers that the contractor intends to use. An up-to-date list of trained companies and drivers is available at www.fors-online.org.uk.

8.6.4. A collision reporting system will be mandated to ensure all collisions and accidents involving the projects' vehicle and drivers are reported to the project manager and any relevant parties. The 'FORS manager' reporting tool will be used; www.fors-online.org.uk.

8.6.5. The site will be registered with the 'Considerate Constructors Scheme'. This is a national initiative through which construction sites and companies registered with the scheme are monitored against a code of considerate practice, designed to encourage best practice beyond statutory requirements.

8.6.6. The procurement process for contractors will take into account commitment to safer, more efficient and more environmentally friendly distribution by contacting operators registered with a best practice scheme, such as Freight Operator Recognition Scheme (FORS) and Construction Logistics and Cyclist Safety (CLOCS) Champions.

Adherence to designated routes

8.6.7. Details of routes to be used for journeys to and from site for road operations are provided in **Section 8.5**. The routes to/from the TLRN and strategic road network are specified. These access routes have been reviewed with respect to potential impacts, conflicts and hazards. Junctions and parts of the routes of particular potential concern have been identified in terms of coming into conflict with other road users, with particular attention paid to pedestrians and cyclists around access to work sites.

8.6.8. A copy of the route plan will be given to all suppliers when orders are placed to ensure drivers are fully briefed on the required route to take. The supplier will be made aware that these routes are required to be followed at all times unless agreed or alternate diversions are in place.

Delivery scheduling

8.6.9. A web-based delivery management system will be used to control the volume of deliveries to site. This system will work by defining the number of 'resources' a site has and thus can service in 30 minute intervals. It then limits the number of delivery bookings per half-hour to this defined capacity.

8.6.10. Subcontractors and hauliers must be booked in a minimum of 48-hours in advance in order to allow the request to be reviewed and subsequently approved/declined. The system can be accessed by completing a new user application form and submitting it, countersigned by your supplier relationship manager or package manager to the delivery manager.

8.6.11. KPIs will be proposed to indicate that; zero unplanned vehicles, zero non-compliant vehicles and zero instances of project-related vehicles involved in a collision, arrive at site.

Re-timing for out-of-peak deliveries

8.6.12. Deliveries in general will arrive between 08.00 and 16.00, thus managing an extension on this period will assist in reducing delivery failure as well as reducing congestion attributed to the site on the highway network. A well-managed delivery management system will assist with achieving the re-timing of deliveries.

Re-timing for out-of-hours deliveries

8.6.13. Re-timing deliveries to occur out of hours will be considered further by the developer and appointed contractor, whom will commit to deliveries at these times where possible.

Use of holding areas & vehicle call-off areas

8.6.14. The site has a potential storage area within its boundary, it is not proposed to use any holding areas or vehicle call-off areas for the construction of the proposed development.

Use of logistics / consolidation centres

8.6.15. The site is situated outside central London and near to many arterial routes, and has capacity to accommodate a number of vehicles on site at any one time. It is not proposed to use any consolidation centres for the construction of the proposed development.

Measures to encourage sustainable freight

Freight by water

8.6.16. The site does not lend itself to bringing construction materials by water due to no body of water being directly accessible. This option is therefore considered not possible for the proposed development.

Freight by rail

8.6.17. The site does not have any direct access to rail infrastructure to facilitate deliveries. This option is therefore considered not possible for the proposed development.

Use of electric vehicles

8.6.18. The use of electric freight vehicles will be encouraged for deliveries to the site. The appointed contractor will work with sub-contractors, suppliers, and haulage/transport suppliers to encourage the use of electric vehicles for freight delivery.

Material procurement measures

Design for manufacture and assembly and off-site manufacturing

8.6.19. Reducing delivery numbers and effective delivery management is a core value of this development. Therefore, the option of off-site construction will be discussed upon appointment of a contractor and used where possible.

Re-use of material on-site

8.6.20. The site is currently unoccupied. Therefore, the re-use of materials on site is not considered applicable for this site.

Smart procurement

8.6.21. The appointed contractor will explore suppliers in the procurement stage that use water or electric vehicles to deliver freight, as well as sourcing local suppliers to contribute to the local economy. Exploration of opportunities to source materials from the same suppliers as other developers with sites nearby will also be explored.

Other measures

Collaboration amongst other sites in the area

8.6.22. The developer and appointed contractor will consult with LBH, TfL, and other contractor/developers in the area to minimise disruption, where possible.

Implementation of a staff Travel Plan

8.6.23. There will be no on-site parking provided for construction workers vehicles. Restrictions are also in-place to prevent on-street parking on roads surrounding the site. As there are excellent transport links nearby, travel by public transport will be strongly encouraged.

8.7 ESTIMATED VEHICLE MOVEMENTS

8.7.1. During the peak months of construction, approximately 360 construction vehicles will access the site. This equates to 18 vehicles per day and three vehicles in the peak hour, assuming 20% of vehicles arrive during the peak. These vehicles are expected to spend approximately 15 minutes each which give will be sufficient to accommodate the number of vehicles (three) expected to arrive during the peak hour.

8.7.2. The construction traffic can be assumed to be spread evenly over a 10 hour working day although there may be slight peaks, with deliveries avoided during the network peak hours for vehicular, cyclist and pedestrian movements. The hours are likely to consist of the following:

- 08:00 – 18:00 hours Monday to Friday (with a one-hour period of mobilisation / demobilisation at the start and end of the day).
- 08:00 – 13:00 hours Saturday, (with a one-hour period of mobilisation / demobilisation at the start and end of the day).
- No working on Sundays or Bank Holidays.

8.7.3. Taking the above into account it is envisaged that there will be no more than three HGV construction vehicles entering the site per hour, equating to a maximum of 18 on any given day. The effect on the total two-way traffic in the area would be negligible. Moreover, it should be noted that 18 HGVs per day would be a worst-case scenario, and this is typically of a short duration compared to the whole construction programme. During the other periods the construction vehicle flows are generally a third, or less, than these peak activity periods.

8.7.4. Where possible, peak network times will be avoided for deliveries. This will be managed by the contractor following appointment and once the construction programme is finalised. The contractor will also provide specific delivery schedule information when appointed.

8.8 IMPLEMENTING, MONITORING AND UPDATING

8.8.1. A programme of monitoring and review will be confirmed upon appointment of a contractor. However, the monitoring is intended to generate data against which the success of the CLP can be measured, and new management measures introduced where necessary.

8.8.2. The appointed contractor will be responsible for monitoring and reviewing activity on the site including vehicle arrivals and departures. All monitored movements will be documented and made available to the local authority on request.

8.8.3. An appointed construction logistics manager will be in charge of implementing the detailed CLP on behalf on the contractor. Their job description will include collecting data on:

- The number of vehicle movements to the site, collected by the delivery booking-in system, including:
  - total number of vehicles, by vehicle type/size/age.
  - duration the vehicle was on site.
  - the origin of the vehicle.
  - the accuracy of the vehicles arrival in relation to the booking system.
- Breaches and complaints, including:
  - deviation from prescribed vehicle routes.
  - unacceptable queuing.
  - unacceptable parking.
  - status of the suppliers FORS accreditation.
  - compliance of the vehicle to ULEZ and LEZ standards.
- Safety, including:
  - logistics related collisions/near-misses.
  - any associated injuries or fatalities.
  - the methods of travel staff are travelling to site.
  - whether vehicles or their operation are meeting safety requirements.
- The data collected will be reported back with full transparency to the relevant authorities.

9 CONCLUSIONS

9.1 SUMMARY

Proposals

9.1.1. This Transport Assessment has been prepared in support of the proposed Hillingdon Gardens development, situated adjacent to the Hillingdon circus junction in the London Borough of Hillingdon. The site is currently a vacant brownfield site that was formerly occupied by the Master Brewer Motel and pub. The proposed scheme comprises 514 residential units, together with c.1,141m^2 GEA of flexible retail, commercial and community floorspace.

9.1.2. 154 car parking spaces are provided for the residential uses, at a ratio of 0.3 spaces per dwelling, with an additional 6 visitor bays and 4 car club bays situated within the site. This ratio will deliver a balance between the need for sufficient parking to meet demand, and discouraging the wide take-up of car use. The provision complies and falls within the maximum car parking standards as set out in the draft New London Plan, and will vary across different unit types, with larger units having a higher parking ratio than smaller units.

9.1.3. Blue Badge and active / passive electric vehicle charging bays will be provided in line with the draft New London Plan standards. Cycle parking will also be provided in line with draft New London Plan requirements, and a Cycle Hub will be installed at the development to further enable cycling as a viable mode of travel. A small element of motorcycle parking will also be provided.

9.1.4. The vehicular access will be provided via the existing site access point on Freezeland Way, with the majority of traffic reaching the development via the Hillingdon Circus junction. A new right-turn filter will be introduced on Freezeland Way for traffic arriving from the east via the A40 westbound. The site access will accommodate two-way traffic movements, leading towards an internal loop road around the garden square. This road will take the form of a shared space surface to prioritise pedestrian and cycle activity within the site, and the route will operate one-way in a clockwise direction. The layouts have been designed to ensure that each individual block is accessible for pedestrians, cyclists, vehicular traffic as well as servicing and refuse vehicles. Pedestrian and cycle routes to the east of the site will also be created, in order to unlock access to the nearby Hillingdon Trail and Ickenham Marshes.

9.1.5. Residential car parking will be predominantly situated in secure podium car parks at the western and northern site boundaries, accessed by key fob. There will be a small element of on-street car parking for the eastern units within the public realm, whilst the car club and visitor bays will also be strategically located on-street towards the site access to maximise exposure.

9.1.6. By preventing excessive car parking provision; promotion sustainable transport initiatives and setting out a comprehensive parking management strategy for the site and surrounding areas, the development proposals will be able to bring forward much needed new housing in the London Borough of Hillingdon whilst ensuring that the impact on the surrounding highway network is acceptable.

Improvements to baseline

9.1.7. Pedestrian and cycle access will be provided along the main desire lines, such as from Long Lane north towards the cycle path along the southern side of Freezeland Way. Adjustments will be made along the northern, eastern and southern pedestrian crossings of the Hillingdon Circus junction. The pedestrian islands will be widened, enhancing safety and ease of access for pedestrians and cyclists moving across the junction. It is also proposed to upgrade the eastern staggered crossing to a toucan crossing, providing improved connections by bike towards the cycle path along the south side of Freezeland Way. In addition, the Oxford Tube bus stop along Freezeland Way will be widened to allow for a suitable bus shelter. Dropped kerbs will also be provided to allow for mobility impaired access. The right turn filter along Freezeland Way westbound will also be extended, as recommended in the Road Safety Audit. It is presumed that these works would form part of the off-site highways proposals to be delivered prior to occupation as part of the Section 278 works.

9.1.8. The developer will also provide a financial contribution towards the operation of the forthcoming 278 bus service, which is anticipated to commence service in December 2019. This service will run directly past the site, providing north-south connections along Long Lane from Ruislip town centre to Uxbridge Road. From here, it will continue towards Hayes, including Hayes and Harlington Station, which will be situated on the Crossrail line. The route will then head to Heathrow Airport Terminals 2 and 3, where it will terminate.

9.1.9. The site currently has a PTAL of 3, considered to be a moderate level of accessibility. A manual PTAL exercise has been conducted, which shows that following the introduction of the 278 bus service, the site will achieve a PTAL of 4, considered to be a good level of accessibility.

Trip generation

9.1.10. The trip generation methodology has been revised following the submission of the 2017 application, and has been agreed with TfL as part of the pre-application scoping process. TRICS surveys for three comparable sites in outer London have been utilised to generate the multimodal trip generation, with a 20% redistribution of car trips towards sustainable modes to account for the lower car parking ratio at Hillingdon Gardens. The trip generation demonstrates that the number of car driver trips during the AM and PM network peak hours is less than was forecast as part of the 2017 application.

9.1.11. As part of the 2017 application, extensive traffic modelling work was undertaken with TfL to assess the development impact on the surrounding highway network. Given that the proposed development creates a net reduction in forecast vehicle trip generation when compared with the 2017 application, no further traffic modelling or assessment work has been undertaken. Traffic surveys undertaken in September 2019 further validated that there is no need for further assessment to be undertaken, demonstrating that the baseline traffic flows have not increased since the initial modelling work was conducted. This approach has been agreed with TfL.

9.1.12. A station capacity assessment has been undertaken at Hillingdon Underground Station to evaluate the impact of the proposed development at the ticket barriers and station entrance. The assessment demonstrates that, with cumulative and development trips added, a width of 1.9m is required at the bridge going into the station. The bridge is c.4.5m wide and therefore operating well within capacity. The assessment also shows that three ticket barriers are required at the gate-line, whilst four are currently in place at the station.

9.1.13. The impact of the proposed development on the local pedestrian and cycle networks, as well as bus services, is negligible. Improvement works at Hillingdon Circus and contributions towards bus services will also be funded by the developer to further enhance the capacity and user experience for each of these modes.

9.2 IMPACTS AND SOLUTIONS

9.2.1. The key transport impacts and mitigations of the proposed development are shown in **Table 9-1**.

Table 9-1: Key transport impacts and mitigations

	Key transport impacts	Mitigations
Site and surroundings	The site enjoys a moderate level of public transport accessibility, with a PTAL rating of 3. Though the site is in outer London, its proximity to Hillingdon Station and a number of bus services lends itself to travel by sustainable modes and commuting towards central London or Uxbridge. Hillingdon Circus junction, adjacent to the site, experiences congestion during the network peak hours. The proposed development has been designed to minimise the impact on the junction. A key principle of the scheme is that it should integrate with the surroundings, and is able to be used by existing residents of the local area, as well as residents of the proposed development.	Pedestrian and cycling improvements at Hillingdon Circus towards Hillingdon Station. Cycle parking in line with draft New London Plan requirements. Limiting the amount of residential car parking available on-site. Public realm and active frontages as an extension of the retail along Long Lane. Dedicated pedestrian routes towards the Hillingdon Trail and Ickenham Marshes.
Active Travel Zone	Though the site is not within a highly permeable or 'healthy' neighbourhood, it is within walking and cycling distance of a lot of amenities that users of the development will require. The Active Travel Zone assessment demonstrated that the journeys to key destinations follow desire lines and are generally along routes of acceptable quality.	Pedestrian and cycling improvements at Hillingdon Circus. Potential maintenance and minor improvements have been identified along key routes.
London-wide network	Extensive highway modelling was conducted as part of the 2017 application, and the proposed development will generate a net reduction in vehicle trips when compared to the 2017 application. A station capacity assessment was also undertaken, showing that Hillingdon Underground Station could accommodate the additional trips generated by the proposed development. The development proposals have been shown not to have an adverse impact on the public transport or highway networks.	Limiting the amount of residential car parking available on-site. Improving pedestrian access towards Hillingdon Station and nearby bus stops. Providing contributions towards the 278 bus service.
Construction	The site is well connected to London's arterial highway network, situated immediately adjacent to the A40 junction. The A40 leads to the M25, which subsequently connects to the wider national road network. Construction will likely coincide with the construction of HS2 in the local area.	Construction vehicles will be advised to access the site directly from the A40 in order to avoid overlapping with HS2 construction routes.

Appendix A

TFL CORRESPONDENCE

Transport for London

TfL Spatial Planning Ref: HLDN/19/294

Tim Gabbitas
WSP
-sent via email only-

Transport for London
City Planning

5 Endeavour Square
Westfield Avenue
Stratford
London E20 1JN

Phone 020 7222 5600
www.tfl.gov.uk

22 July 2019

Dear Tim,

Re: Hillingdon Gardens (Former Master Brewer Site), Freezeland Way, LB Hillingdon – TfL pre-application advice

Thank you for taking advantage of the TfL pre-application advice service, the aim of which is to ensure that development is successful in transport terms and in accordance with the relevant current and draft London Plan policies.

This letter concerns the recent pre-application meeting, which was held to discuss the proposals for the Former Master Brewer Site, Freezeland Way in the London Borough of Hillingdon, and took place on Monday 8th July 2019. The advice in this letter is based on the Transport Assessment Scoping Report dated July 2019 supplied in advance of the meeting, discussions during the meeting as well as email correspondence with the applicant after the meeting.

The following comments are made by Transport for London (TfL) officers on a 'without prejudice' basis only. You should not interpret them as an indication of any subsequent Mayoral decision on any planning application based on the proposed scheme and these comments do not necessarily represent the views of the Greater London Authority (GLA).

General

The Transport Assessment (TA) report to be produced by the applicant as part of the planning application submission should be in line with TfL's Transport Assessment guidance available at: https://tfl.gov.uk/info-for/urban-planning-and-construction/transport-assessment-guide/transport-assessments. It is expected that the applicant's TA will be produced in line with TfL's updated Healthy Streets TA guidance and include a full Active Travel Zone (ATZ) assessment.

The attendees of the pre-app meeting are listed below. Prior to the meeting, the Transport Assessment Scoping Report (dated July 2019) was circulated to attendees and formed the basis of discussions.

TfL attendees:

Joe Oakden - Assistant Planner, Spatial Planning (case officer)
Clare Seiler - Principal Planner, Spatial Planning
Michal Miklasz - Outcomes Delivery Modelling Liaison
Dan Booth - Bus Network Development
Thomas Stone - London Underground Development

Applicant attendees:

Tim Gabbitas - WSP
Sarah Hiscutt - GL Hearn
Joao Bravo da Costa - Collado Collins

Apologies:

Joseph Birdseye – TfL Principal Traffic Control Engineer

Site Location and Context

The development site is located on Freezeland Way on currently vacant brownfield land that was formerly occupied by a Master Brewer Motel and pub. The site is bound by the A40 Western Avenue to the north and Freezeland Way to the south; both of which form part of the Transport for London Road Network (TLRN). The site is further bound by Long Lane to the west and greenbelt land to the east.

Hillingdon London Underground station is located approximately 200m north-west of the site, accessed via crossing Hillingdon Circus and walking north along Long Lane. Hillingdon station is served by Metropolitan and Piccadilly line services. The site is currently served by one route, the U2 (Brunel University to Uxbridge), which runs along Long Lane. From December 2019, the site will also be served by the 278 bus route (Heathrow to Ruislip).

Consequently, the site records a Public Transport Access Level (PTAL) of 2/3, on scale of 0-6, where 6b is highest.

Development Proposals

The development proposals, as they stand, are for approximately 550 residential units, together with a small offering of commercial/retail space. It is understood that an application will be submitted in August 2019.

Planning History

The site has been subject to a number of previous applications, including proposals for a food store. The most recent application for a residential – led scheme was submitted in August 2017, subsequently amended in 2018, and was refused planning permission in February 2019.

Site Access

The existing vehicular access junction on Freezeland Way will be retained. A proposed break in the central reservation on Freezeland Way will enable access to the site from the east via a right-turn filter lane. Pedestrian and cyclists will also be able to access the site via a public realm square, located in the south-western corner of the site. This strategy is acceptable in principle to TfL, subject to relevant Stage 1 Road Safety Audits (RSA) and swept path analysis being undertaken, and any subsequent design issues being addressed. The RSA should be completed in accordance with TfL's Road Safety Audit procedure SQA-0170.

Car Parking

Car parking is proposed at a level of 0.3-0.35 spaces per residential unit. This provision is in line with draft London Plan policy T6.1 and is therefore considered acceptable. TfL would encourage the applicant to restrict car parking to as much as possible, in order to deliver the objectives of the Mayor's Transport Strategy and draft London Plan.

The majority of car parking will be located at podium level, with a small proportion on-street. The draft London Plan policy T2 Healthy Streets states that 'development proposals should reduce the dominance of vehicles on London's streets whether stationary or moving' and therefore on-street car parking should be restricted.

It is understood that at least 3% of all car parking will be designated disabled persons parking, in accordance with draft London Plan policy T6.1. In order to fully conform to this policy, it should be demonstrated on plan as part of the Parking Design and Management Plan how an additional 7% of dwellings could be provided with a designated disabled persons parking space if required in the future.

Draft London Plan policy compliant levels of Electric Vehicle Charging Points (EVCPs) will be provided, which is welcome and supported.

A total of 4 car club bays are proposed as part of the scheme, which is considered an appropriate amount. TfL would however be resistant to any increase to this number, to ensure that active travel options are not undermined. The ongoing monitoring of the usage of these bays was discussed and this should form part of the Parking Design and Management Plan.

Cycle Parking

It is understood that cycle parking will be provided in conformity with the minimum standards set out in draft London Plan policy T5, which is welcomed.

Long-stay cycle parking is proposed at ground level within each building, with the quantum in each store corresponding directly with the requirements of each block, which is considered acceptable.

It is understood that the majority of cycle parking will be in the form of two-tier racks. Where these are provided, it is recommended that they should have a mechanically or pneumatically assisted system for accessing the upper levels as many people find using these spaces difficult. The product must allow for double locking and minimum aisle widths, as set out in the London Cycle Design Standards (LCDS), must be met in order for these spaces to be usable.

The draft London Plan requires proposals to demonstrate how cycle parking will cater for larger cycles, including adapted cycles for disabled people. It is understood that at least 5% of spaces will be in the form of Sheffield stands, which is welcomed in accordance with the draft London Plan and LCDS.

End of journey facilities should also be provided for staff working in the retail and commercial units at the site, including changing rooms, maintenance facilities, lockers (at least two per three long-stay spaces recommended) and shower facilities (at least one per ten long-stay spaces recommended) in order to conform to draft London Plan policy T5 and the LCDS. Accessible facilities for disabled cyclists should also be provided.

Trip Generation and Modal Split

A trip generation assessment was provided in the pre-meeting material and the methodology was discussed at the meeting. The comparability of the sites chosen for the TRICS assessment was discussed. Following the meeting additional sites were identified and were agreed to be comparable and suitable for use in the TA.

Given the higher parking ratio at the sites selected, it was further agreed that a vehicle trip reduction should be applied. TfL recommends a 20% vehicle trip reduction is applied given that this represents a good balance between policy mode share targets and proposed car parking supply, whilst still ensuring a robust impact assessment. The redistribution of these trips was also discussed at the meeting, as the pedestrian mode share in the Transport Scoping Note seemed high. TfL suggests that London Underground and Buses should be assigned 7.5% of the reallocated trips each, whilst walking and cycling should be assigned 2.5% each. This has been presented in a revised trip generation note provided on 19 July 2019 and the proposed residential trip generation exercise is acceptable.

The Transport Scoping Note outlined that the trip generation exercise would focus solely on forecasting the residential trips. Whilst the scale of the proposed commercial and retail units may be small, TfL would still expect that the trip generation of these are assessed, to ensure the full impact of the development trips is reflected.

Public Transport Impact

Buses

The site is currently served by one bus route (U2- Brunel University to Uxbridge). The site will be served by a second bus route (278- Heathrow to Ruislip) in December 2019.

The development will generate an increase in the use of local bus services and it is expected that the applicant will contribute towards the upgrade of both the U2 and 278 to mitigate these impacts. This could take the form of extra capacity on these routes in order to improve conditions and accessibility for bus users. A total of £375,000 (£75,000 per year for 5 years) was agreed for the previous application at the site, which would pay for one additional bus journey in the AM peak. Given the increase in number of units and lower car parking ratio, which in turn has resulted in an increase in the number of bus trips generated, it is expected that an increased contribution will be sought. Based on the initial numbers presented, the contribution required could be in the region of £800,000 to £1.5m.

The final amount of site specific bus service mitigation required will be determined upon review of the TA submitted as part of the application.

London Underground (LU)

Given the proximity of the site to Hillingdon station, it is assumed all trips will start/finish here. In order to allow for full assessment of the impact of the development on London Underground services, it is expected that all LU trips will be split by direction of travel. Furthermore, a line and station capacity assessment should be included in the TA. Data required to produce such assessment can be found through the Rolling Origin and Destination Survey (RODS) available at: https://tfl.gov.uk/info-for/open-data-users/our-open-data#on-this-page-9.

Upon review of the information provided, TfL will determine if any mitigation against capacity will be sought.

Highway Impact Assessment and Traffic Modelling

It is understood that no changes to the highway mitigation measures attached to the previous applications on the site are proposed. This includes increasing junction capacity at Hillingdon Circus (through improvements to signal timings) and introducing a right turn filter lane from the south on Long Lane to improve access.

Extensive highway modelling was undertaken for the 2017 application. Despite an increase in the number of units, the number of vehicular trips generated by the proposals is expected to decrease, owing to a reduction in car parking on site. As such, the applicant proposes to submit the same highway models as a confirmation that the impact of the proposed works could be accommodated with no additional mitigation.

It is expected that since the modelling was undertaken, demand in this area of the network may have changed. In order to confirm that the modelling undertaken in 2017 is still valid, the applicant should undertake baseline surveys to ensure that the network operation has not changed. The inputs in to the models should then be altered to reflect the updated baseline flows, as well as the revised trip rates from the development.

As mentioned above, the site will be served by the 278 bus route from December 2019. It is expected that this route would be run in the models in order to fully ensure that these reflect the current and future network demand.

The applicant is strongly encouraged to engage in continuous dialogue with TfL on this matter in the lead up to submission of the application to ensure the highway impact assessment is robust.

Internal Highway Proposals

The internal road layout is proposed to be a two-way loop road, to be treated as a shared-space. It should be ensured that these spaces are legible and comfortable to use for visually impaired people through the scheme design. TfL recommend that sufficient kerb upstands should be provided and surface materials should be outlined in the submission, in order to allow TfL to assess the acceptability of the proposals.

Active Travel Zone (ATZ) Assessment

The TA should include an ATZ assessment. The scope of this assessment was discussed during the meeting and agreed post-meeting. This included 7 routes to local public transport stations, educational facilities and leisure facilities. Once the key destinations have been mapped, KSI's should be added. If any clusters (1 or more killed and/or 2 or more seriously injured) along the key routes, changes should be suggested which would make the area safer using the Healthy Streets Approach. Full guidance on producing ATZ assessments can be found at: https://tfl.gov.uk/info-for/urban-planning-and-construction/transport-assessment-guide/transport-assessments.

Walking, Cycling, Healthy Streets and Vision Zero

TfL has launched the Healthy Streets Approach, which aims to improve air quality, reduce congestion and make attractive places to live, work and do business. There are ten Healthy Streets indicators, which put people and their health at the heart of decision making, and aim to result in a more inclusive city where people choose to walk, cycle and use public transport.

The proposals include a landscaped public realm square in the south-western corner, as well as additional pedestrian routes through the green-belt land to the east of the site. The provision of these routes are welcomed, and promote walking and cycling in the vicinity of the site, in line with draft London Plan policy T2 Healthy Streets.

The proposed design changes to existing road layout should be assessed against the 10 Healthy Streets indicators using the Healthy Streets Check for Designers, in order to ensure the development delivers improvements on the existing layout.

Alongside the Healthy Streets Approach, the Mayor's Vision Zero aspiration, which aims to eliminate death or serious injury on London's roads, supports changes to our road network to improve the safety of vulnerable road users. The applicant is strongly encouraged to identify any improvements, no matter how small, in order to reduce the likelihood of an accident. TfL recently published 'Small Change, Big Impact', which highlights ways London's public spaces can be improved by small improvements. The applicant should consult such literature and think innovatively both within and outside their red line boundary on how they could make a positive contribution to local land users.

Construction

TfL will require an Outline Construction Logistics Plan (CLP) to be submitted in support of the application, written in accordance with TfL's best practice guidance which can be found at: https://tfl.gov.uk/corporate/publications-and-reports/freight.

This document should consider measures such as a delivery booking system, off-site fabrication, consolidation of deliveries and co-operation between construction sites in the area (including common procurement).

It is expected that the impacts of construction will be carefully managed, in order to ensure that highway operation, bus services and pedestrian movements remain unaffected during the works.

Servicing

It is understood that a bin store will be provided in each building and refuse will be collected within a 10m drag distance. Options for a consolidated system are currently being explored, close to the site entrance. Details on how the site will operate, including measures to rationalise and manage servicing activities should be including as part of a Delivery and Servicing Plan (DSP), which should be submitted as part of the upcoming application, as required by draft London Plan policy T7. Further guidance on producing DSP's can be found at: http://content.tfl.gov.uk/delivery-and-servicing-plans.pdf.

Travel Planning

A framework travel plan should be produced in accordance with TfL's guidance for travel planning. The full travel plan should be secured, enforced, monitored, reviewed and funded through the S106 agreement to ensure conformity with draft London Plan policy T4.

Mayoral Community Infrastructure Levy (MCIL)

The development will be liable to Mayoral Community Infrastructure Levy 2 (MCIL2) as well as Borough CIL. MCIL2 is charged at as rate of £60/sqm for all qualifying development in Hillingdon. The applicant should ensure they are fully aware of the regulations.

Summary

This letter has set out a number of strategic issues which should be addressed as part of the forthcoming submission. If you have any queries, further questions or seek clarification, please contact the case officer Joe Oakden (020 7126 4898 or email JosephOakden@tfl.gov.uk) or myself. Please note that Joe Oakden will be leaving TfL on 23rd August 2019. If you have any queries after this time, please contact Clare Seiler (020 7027 9639 or email ClareSeiler@tfl.gov.uk).

Yours sincerely,

Lucinda Turner
Director of Spatial Planning
Email: lucindaturner@tfl.gov.uk
Direct line: (020) 3054 7133

Copy to: all meeting attendees, Connaire O'Sullivan – GLA Planning

From:	Smith, Ben
Sent:	04 September 2019 16:09
To:	Seiler Clare
Cc:	Gabbitas, Tim
Subject:	RE: Hillingdon Gardens (Former Master Brewer Site) - New Scheme and Application

Hi Clare

Thanks for your response. We are intending to submit for planning next week so we will just include the station capacity assessment within the TA.

I will amend the designers' response to the RSA and include it within the RSA report as you advise. We will also send it over to Hillingdon prior to planning submission.

Thanks for your help.

Ben Smith
Transport Planner

T+ 44 (0)20 7314 4577

From: Seiler Clare [mailto:ClareSeiler@tfl.gov.uk]
Sent: 04 September 2019 11:56
To: Smith, Ben <Ben.J.Smith@wsp.com>
Cc: Gabbitas, Tim <tim.gabbitas@wsp.com>
Subject: RE: Hillingdon Gardens (Former Master Brewer Site) - New Scheme and Application

Hi Ben,

Apologies for delay in getting back to you.

Re station capacity assessment – depends when you're submitting really. If there's time, Tom could look at it next week when he's back, or he'll just review when application comes in.

Re RSA – many thanks for supplying this. The RSA has picked up a few problems, of which most have been addressed in the designers response. Further issues will likely be picked up at the detailed design stage in the Stage 2 RSA, as part of the S278. Given that any S278 would be with the Highway Authority and that ultimately the safe operation of this road is their responsibility, I suggest that you send this to Hillingdon for comment to ensure all bases are covered.

The other thing to note is that usually the designers response should be included in the RSA report, not separate. The documents should also be signed by the designer and client organisation please.

Kind regards,
Clare

Clare Seiler – TfL Spatial Planning
T: 020 7027 9639, Auto: 59639

From: Smith, Ben [mailto:Ben.J.Smith@wsp.com]
Sent: 28 August 2019 16:11
To: Seiler Clare
Cc: Gabbitas, Tim
Subject: RE: Hillingdon Gardens (Former Master Brewer Site) - New Scheme and Application

Hi Clare

Do you require sight of our station capacity assessment prior to submission?

On another note, please see attached the Hillingdon Gardens Stage 1 RSA, as well as the designer's response. Please let us know your thoughts.

Thanks

Ben Smith
Transport Planner

wsp

T+ 44 (0)20 7314 4577

From: Oakden Joseph [mailto:JosephOakden@tfl.gov.uk]
Sent: 16 August 2019 16:25
To: Smith, Ben <Ben.J.Smith@wsp.com>; Gabbitas, Tim <tim.gabbitas@wsp.com>
Cc: Seiler Clare <ClareSeiler@tfl.gov.uk>; Stone Thomas <ThomasStone@tfl.gov.uk>
Subject: RE: Hillingdon Gardens (Former Master Brewer Site) - New Scheme and Application

Hi Ben,

As far as I am aware, we don't have a future year forecast from RODS. Given this, I would say to use RODS 17 as is.

Hope that helps and have a good weekend.

Thanks,
Joe

Joseph Oakden
Assistant Planner (West) | Spatial Planning
Transport for London 9B5, 5 Endeavour Square, Westfield Avenue, London | E20 1JN
Phone: (020) 7126 4898 | Auto: 64898 | Email: JosephOakden@tfl.gov.uk

TRANSPORT FOR LONDON
EVERY JOURNEY MATTERS

From: Smith, Ben [mailto:Ben.J.Smith@wsp.com]
Sent: 16 August 2019 13:09
To: Oakden Joseph; Gabbitas, Tim

Cc: Seiler Clare; Stone Thomas
Subject: RE: Hillingdon Gardens (Former Master Brewer Site) - New Scheme and Application

Hi Joe

Thanks for confirming our scope.

Please can you advise if there is any future year data or growth factors we should use for the future + development scenario? If there is a dataset we can use, can you also advise whether this includes committed schemes?

Best regards

Ben Smith
Transport Planner

T+ 44 (0)20 7314 4577

From: Oakden Joseph [mailto:JosephOakden@tfl.gov.uk]
Sent: 15 August 2019 09:44
To: Gabbitas, Tim <tim.gabbitas@wsp.com>; Smith, Ben <Ben.J.Smith@wsp.com>
Cc: Seiler Clare <ClareSeiler@tfl.gov.uk>; Stone Thomas <ThomasStone@tfl.gov.uk>
Subject: RE: Hillingdon Gardens (Former Master Brewer Site) - New Scheme and Application

Hi Tim,

Many thanks for confirming.

The approach to the assessment sounds good to me. To confirm, the static assessment should be undertaken using RODS as a base and then the formulas found in station planning guidelines.

Best regards,
Joe

Joseph Oakden
Assistant Planner (West) | Spatial Planning
Transport for London 9B5, 5 Endeavour Square, Westfield Avenue, London | E20 1JN
Phone: (020) 7126 4898 | Auto: 64898 | Email: JosephOakden@tfl.gov.uk

From: Gabbitas, Tim [mailto:tim.gabbitas@wsp.com]
Sent: 14 August 2019 15:40
To: Oakden Joseph; Smith, Ben; Stone Thomas
Cc: Seiler Clare
Subject: RE: Hillingdon Gardens (Former Master Brewer Site) - New Scheme and Application

Hi Joe,

The pinch points were identified based on the route from the station to our development site. We anticipate all pedestrian journeys to the station generated by our development (whether residents, visitors or workers) approaching via the Long Lane entrance beside the pub. This would take them along the footbridge to the gatelines above the platforms. We therefore propose to assess the access onto the footbridge from Long Lane (the footbridge width is continuous along its entire length), and again at the gatelines within the station building.

Best regards,

Tim

Tim Gabbitas
Director

M+44 (0)7881 267 762
F+44 (0)20 7314 5111

WSP House
70 Chancery Lane
London WC2A 1AF
United Kingdom

wsp.com

From: Oakden Joseph [mailto:JosephOakden@tfl.gov.uk]
Sent: 14 August 2019 13:33
To: Smith, Ben <Ben.J.Smith@wsp.com>; Stone Thomas <ThomasStone@tfl.gov.uk>
Cc: Seiler Clare <ClareSeiler@tfl.gov.uk>; Gabbitas, Tim <tim.gabbitas@wsp.com>
Subject: RE: Hillingdon Gardens (Former Master Brewer Site) - New Scheme and Application

Hi Ben,

Thanks for this. Just for our understanding, would you be able to clarify how the station was examined to come to the conclusion that the two pinch points are the bridge entrance and the gateline?

The base data sets to produce the assessment are publically available as an output of the Rolling Origin and Destination Survey (RODS) which can be found at: https://tfl.gov.uk/info-for/open-data-users/our-open-data?intcmp=3671#on-this-page-9.

Thanks,
Joe

Joseph Oakden
Assistant Planner (West) | Spatial Planning
Transport for London 9B5, 5 Endeavour Square, Westfield Avenue, London | E20 1JN
Phone: (020) 7126 4898 | Auto: 64898 | Email: JosephOakden@tfl.gov.uk

We have recently made changes to our pre-application service and charges, and introduced a new Initial Screening process. For more info please visit: https://tfl.gov.uk/info-for/urban-planning-and-construction/planning-applications/pre-application-services

From: Smith, Ben [mailto:Ben.J.Smith@wsp.com]
Sent: 13 August 2019 17:17
To: Oakden Joseph; Stone Thomas
Cc: Seiler Clare; Gabbitas, Tim
Subject: RE: Hillingdon Gardens (Former Master Brewer Site) - New Scheme and Application

Hi Joe, Thomas

As part of the Transport Assessment you have requested that we conduct a station capacity assessment at Hillingdon Station. We note that you requested us to use TfL base data sets to assess the base and the base + future (including committed) scenarios, and to look at percentage utilisation of gate lines and any pinch points at the station.

Having examined the station, we believe that other than at the gate lines, the only pinch point is at the entrance to the bridge into the station. We therefore propose to assess the capacity at the bridge entrance and at the ticket barriers. Please can you confirm that you are happy with this scope?

Please can you also advise how we are able to obtain the TfL base data sets so that we can conduct the assessment?

Many thanks

Ben Smith
Transport Planner

T+ 44 (0)20 7314 4577

From: Oakden Joseph [mailto:JosephOakden@tfl.gov.uk]
Sent: 24 July 2019 08:56
To: Smith, Ben <Ben.J.Smith@wsp.com>; Gabbitas, Tim <tim.gabbitas@wsp.com>
Cc: Seiler Clare <ClareSeiler@tfl.gov.uk>
Subject: RE: Hillingdon Gardens (Former Master Brewer Site) - New Scheme and Application

Hi Ben,

Thanks for sending this across.

You should now have received our post-meeting note. If you have any questions or queries on this, please do not hesitate to contact me.

I will also be attending the GLA pre-app this afternoon, and would be happy to discuss anything in person there if you are also planning on attending.

Thanks,
Joe

Joseph Oakden
Assistant Planner (West) | Spatial Planning
Transport for London 9B5, 5 Endeavour Square, Westfield Avenue, London | E20 1JN
Phone: (020) 7126 4898 | Auto: 64898 | Email: JosephOakden@tfl.gov.uk

We have recently made changes to our pre-application service and charges, and introduced a new Initial Screening process. For more info please visit: https://tfl.gov.uk/info-for/urban-planning-and-construction/planning-applications/pre-application-services

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From: Smith, Ben [mailto:Ben.J.Smith@wsp.com]
Sent: 19 July 2019 16:57
To: Oakden Joseph; Gabbitas, Tim
Cc: Seiler Clare
Subject: RE: Hillingdon Gardens (Former Master Brewer Site) - New Scheme and Application

Hi Joe

Please see the attached technical note detailing our updated trip generation methodology following discussions with yourselves. We look forward to receiving your comments next week.

Have a good weekend.

Thanks

Ben Smith
Transport Planner

T+ 44 (0)20 7314 4577

From: Oakden Joseph [mailto:JosephOakden@tfl.gov.uk]
Sent: 17 July 2019 13:37
To: Smith, Ben <Ben.J.Smith@wsp.com>; Gabbitas, Tim <tim.gabbitas@wsp.com>
Cc: Seiler Clare <ClareSeiler@tfl.gov.uk>
Subject: RE: Hillingdon Gardens (Former Master Brewer Site) - New Scheme and Application

Hi Ben,

Could you confirm if you would like us to wait for you to issue the technical note including the updated trip generation before we issue our post-meeting comments so that formal comments on this can be incorporated into the note?

If not, I'd be happy to issue the note on Monday.

Thanks,
Joe

Joseph Oakden
Assistant Planner (West) | Spatial Planning
Transport for London 9B5, 5 Endeavour Square, Westfield Avenue, London | E20 1JN

Phone: (020) 7126 4898 | Auto: 64898 | Email: JosephOakden@tfl.gov.uk

We have recently made changes to our pre-application service and charges, and introduced a new Initial Screening process. For more info please visit: https://tfl.gov.uk/info-for/urban-planning-and-construction/planning-applications/pre-application-services

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From: Smith, Ben [mailto:Ben.J.Smith@wsp.com]
Sent: 11 July 2019 16:08
To: Oakden Joseph; Seiler Clare; Gabbitas, Tim
Subject: RE: Hillingdon Gardens (Former Master Brewer Site) - New Scheme and Application

Hi Joe

Thanks for your response. We will review all 7 routes in the ATZ assessment.

Best regards

Ben Smith
Transport Planner

T+ 44 (0)20 7314 4577

From: Oakden Joseph [mailto:JosephOakden@tfl.gov.uk]
Sent: 11 July 2019 16:05
To: Smith, Ben <Ben.J.Smith@wsp.com>; Seiler Clare <ClareSeiler@tfl.gov.uk>; Gabbitas, Tim <tim.gabbitas@wsp.com>
Subject: RE: Hillingdon Gardens (Former Master Brewer Site) - New Scheme and Application

Hi Ben,

Given the site is near equidistant between the two primary schools, it is likely that residents living in the development will still go to school at Oak Farm Primary and therefore I would ask that this is still included, especially as this route also encapsulates the North Hillingdon Methodist Church, which could be another key trip attractor.

Hope this helps.

Thanks,
Joe

Joseph Oakden
Assistant Planner (West) | Spatial Planning
Transport for London 9B5, 5 Endeavour Square, Westfield Avenue, London | E20 1JN
Phone: (020) 7126 4898 | Auto: 64898 | Email: JosephOakden@tfl.gov.uk

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From: Smith, Ben [mailto:Ben.J.Smith@wsp.com]
Sent: 11 July 2019 11:50
To: Oakden Joseph; Seiler Clare; Gabbitas, Tim
Subject: RE: Hillingdon Gardens (Former Master Brewer Site) - New Scheme and Application

Hi Joe

Since the ATZ already includes a route to a primary school (Glebe Primary School), shall I just change the Oak Farm Primary School route to go to Oakland Medical Centre instead? The GP is also cross the road from St Helen's College, which is another early years education school.

Thanks

Ben Smith
Transport Planner

wsp

T+ 44 (0)20 7314 4577

From: Oakden Joseph [mailto:JosephOakden@tfl.gov.uk]
Sent: 11 July 2019 09:05
To: Smith, Ben <Ben.J.Smith@wsp.com>; Seiler Clare <ClareSeiler@tfl.gov.uk>; Gabbitas, Tim <tim.gabbitas@wsp.com>
Subject: RE: Hillingdon Gardens (Former Master Brewer Site) - New Scheme and Application

Hi Ben,

Many thanks for sending this across.

The routes in the proposed scope look to form a good basis for the ATZ assessment and encapsulate the majority of the routes to main trip attractors in the vicinity of the site. In addition to these routes, could the route to the nearest GP surgery also be added (from a quick google the closest looks to be the Oakland Medical Centre and the majority of the route is already encapsulated within that to Oak Farm Primary School- however if the route along Parkway could be added that'd be great).

I hope this helps, and please let me know if you have any further queries.

Thanks,
Joe

Joseph Oakden
Assistant Planner (West) | Spatial Planning
Transport for London 9B5, 5 Endeavour Square, Westfield Avenue, London | E20 1JN
Phone: (020) 7126 4898 | Auto: 64898 | Email: JosephOakden@tfl.gov.uk

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From: Smith, Ben [mailto:Ben.J.Smith@wsp.com]
Sent: 10 July 2019 15:15
To: Oakden Joseph; Seiler Clare; Gabbitas, Tim
Subject: RE: Hillingdon Gardens (Former Master Brewer Site) - New Scheme and Application

Hi Joe

Thanks very much for confirming. We will revise the trip generation based on your recommended methodology below and send a technical note over to you.

In addition to this, please see attached our ATZ scope. We have based this on the key trip attractors for the residential uses, namely public transport services, leisure facilities, schools, shopping centres and connections to the local cycle network. Each of our selected routes is outlined below:

- Hillingdon Underground station – expect a high volume of trips from the site towards the station. This route also includes the bus stops outside the station.
- Ickenham Marshes (Parkland) – this corresponds with the intention to unlock access to the sustainable wildlife facilities near the site. This route also includes the allotments along Freezeland Way and the nearest connections to the strategic cycle network.
- Oak Farm Primary School – given the nature of the development, with flatted dwellings, the likelihood is that families living at the site will typically have younger children. Oak Farm is one of the nearest primary schools to the site (equidistant with St Helen's College) and also has 3 form entry. This route also includes the amenities and bus stops along Long Lane.
- Glebe Primary School – has recently undergone an expansion and may attract a number of pupils from the proposed development. This route also includes Douay Martyrs Secondary School.
- Uxbridge Sports Club / Hillingdon Sports & Leisure Complex – there are a wide array of leisure facilities around this complex which will attract trips from the site and also encourage active lifestyles.
- Uxbridge town centre – the nearest major centre to the site, which will attract a large number of shopping and employment trips from the site. Uxbridge town centre is also the location of the nearest supermarkets to the site (Sainsbury's and Lidl).

Thanks

Ben Smith
Transport Planner

T+ 44 (0)20 7314 4577

From: Oakden Joseph [mailto:JosephOakden@tfl.gov.uk]
Sent: 10 July 2019 15:00
To: Smith, Ben <Ben.J.Smith@wsp.com>; Seiler Clare <ClareSeiler@tfl.gov.uk>; Gabbitas, Tim <tim.gabbitas@wsp.com>
Subject: RE: Hillingdon Gardens (Former Master Brewer Site) - New Scheme and Application

Hi Ben,

The three sites listed below look to be representative of the proposed development (despite the higher car parking ratio) and therefore I am happy for you to proceed with them.

TfL recommends a 20% vehicle trip reduction is applied as this represents a good balance between policy mode share targets and proposed car parking supply, still ensuring a robust impact assessment.

At the meeting we also discussed how vehicle trips should be reassigned and noted the number of main mode pedestrian trips in the scoping note looks to be a bit high. I suggest LU and bus trips should be allocated 7.5% each, with walk and cycle 2.5% each (of the 20% of vehicle trips to be reassigned).

I hope this helps, and please do not hesitate to contact me if you have any questions on the above.

Best regards,
Joe

Joseph Oakden
Assistant Planner (West) | Spatial Planning
Transport for London 9B5, 5 Endeavour Square, Westfield Avenue, London | E20 1JN
Phone: (020) 7126 4898 | Auto: 64898 | Email: JosephOakden@tfl.gov.uk

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From: Smith, Ben [mailto:Ben.J.Smith@wsp.com]
Sent: 10 July 2019 12:52
To: Oakden Joseph; Seiler Clare; Gabbitas, Tim
Subject: RE: Hillingdon Gardens (Former Master Brewer Site) - New Scheme and Application

Hi Joseph

We agree that the surveys undertaken during the school holidays may not be representative and I've therefore gone through the TRICS database again to have a look at other sites. The table below outlines sites that we believe could be representative of the proposed development, albeit with a higher parking ratio. As well as the two new sites, I have also included the one survey site previously extracted not undertaken in the school summer holidays (outlined in red).

Reference	Location	Dwellings	Parking Ratio	PTAL
EG-03-M-06	Southall, Ealing	143	0.63	3
HO-03-C-02	Brentford, Hounslow	86	0.74	3
HO-03-C-03	Brentford, Hounslow	150	0.71	2

We acknowledge that having four sites would be preferable but as I'm sure you can appreciate, the TRICS database does not have many representative sites (and those that are have been surveyed in the school holidays!). We therefore propose using the three sites outlined above.

We can explore the reassignment methodology for car trips, and we understand you would prefer a higher proportion of these to be allocated to London Underground or bus services.

The average parking ratio across the three selected sites is 0.69. Based on this, please can you advise whether a 20%, 30% or proportionate (e.g. 49% reduction from 0.69 if the proposed ratio is 0.35) vehicle trip reduction is preferred?

Please can you give your thoughts on the above today?

Many thanks

Ben Smith
Transport Planner

T+ 44 (0)20 7314 4577

From: Oakden Joseph [mailto:JosephOakden@tfl.gov.uk]
Sent: 10 July 2019 10:29
To: Smith, Ben <Ben.J.Smith@wsp.com>; Seiler Clare <ClareSeiler@tfl.gov.uk>; Gabbitas, Tim <tim.gabbitas@wsp.com>
Subject: RE: Hillingdon Gardens (Former Master Brewer Site) - New Scheme and Application

Hi Ben,

Further to Clare's email below, I have spoken to one of our technical planners this morning.

The surveys undertaken during the school holidays are far from ideal, and do not provide us with a proper overview of the site's trip generating potential- thanks for pointing this out!

Are there any sites available in TRICS with similar characteristics up to a parking ratio of 1:1 surveyed outside of school holidays? Vehicle trips could then be reassigned to more sustainable modes to account for the lower parking ratio proposed, as was the case in the scoping note.

Thanks,
Joe

Joseph Oakden
Assistant Planner (West) | Spatial Planning
Transport for London 9B5, 5 Endeavour Square, Westfield Avenue, London | E20 1JN
Phone: (020) 7126 4898 | Auto: 64898 | Email: JosephOakden@tfl.gov.uk

From: Smith, Ben [mailto:Ben.J.Smith@wsp.com]
Sent: 09 July 2019 15:52
To: Seiler Clare; Oakden Joseph; Gabbitas, Tim
Subject: RE: Hillingdon Gardens (Former Master Brewer Site) - New Scheme and Application

Hi Clare

Thanks for keeping us posted, please let us know the outcome. In the meantime, please see attached the relevant CVs for the Road Safety Audit.

Best regards

Ben Smith

Transport Planner

T+ 44 (0)20 7314 4577

From: Seiler Clare [mailto:ClareSeiler@tfl.gov.uk]
Sent: 09 July 2019 15:45
To: Smith, Ben <Ben.J.Smith@wsp.com>; Oakden Joseph <JosephOakden@tfl.gov.uk>; Gabbitas, Tim <tim.gabbitas@wsp.com>
Subject: RE: Hillingdon Gardens (Former Master Brewer Site) - New Scheme and Application

Hi Ben,

Well spotted!

That doesn't leave us in a great position with in theory only one valid survey. I'm going to speak to one of our technical planners about this tomorrow and will revert by COP.

Thanks
Clare

Clare Seiler – TfL Spatial Planning
T: 020 7027 9639, Auto: 59639

From: Smith, Ben <Ben.J.Smith@wsp.com>
Sent: 09 July 2019 15:14
To: Seiler Clare <ClareSeiler@tfl.gov.uk>; Oakden Joseph <JosephOakden@tfl.gov.uk>; Gabbitas, Tim <tim.gabbitas@wsp.com>
Subject: RE: Hillingdon Gardens (Former Master Brewer Site) - New Scheme and Application

Hi Clare

Thanks for confirming. I will gather some CVs and send this over to you. We proposed auditing the Hillingdon Circus junction and the site access junction.

Relating to trip generation, we have looked at the TRICS sites I understand you recommended to Tim in the meeting yesterday. These are two sites in Acton and one site in Greenwich (as well as the two we already had in Hounslow). It has come to my attention when assessing the validity of these sites that 4 of the 5 surveys may well have been conducted during school holidays. I have outlined these, including TRICS reference, as follows:

- EG-03-M-04 (27/07/17 – likely school summer holidays)
- EG-03-M-05 (27/07/17 – likely school summer holidays)
- GR-03-M-02 (22/12/16 – likely Christmas holidays)
- HO-03-C-03 (25/01/17 – term time)
- HO-03-C-04 (30/08/18 – likely school summer holidays)

Please can you advise if you are happy for us to proceed with these sites regardless? The TRICS database doesn't offer any other more comparable sites.

Thanks

Ben Smith
Transport Planner

T+ 44 (0)20 7314 4577

From: Seiler Clare [mailto:ClareSeiler@tfl.gov.uk]
Sent: 09 July 2019 09:16
To: Smith, Ben <Ben.J.Smith@wsp.com>; Oakden Joseph <JosephOakden@tfl.gov.uk>; Gabbitas, Tim <tim.gabbitas@wsp.com>
Subject: RE: Hillingdon Gardens (Former Master Brewer Site) - New Scheme and Application

Hi Ben,

Yes that's right. Given the circumstances, if you could send over the CVs of the audit team for approval in advance that would be great.

Then commission the audit and send over the results and designers response to us.

Thanks
Clare

Clare Seiler – TfL Spatial Planning
T: 020 7027 9639, Auto: 59639

From: Smith, Ben <Ben.J.Smith@wsp.com>
Sent: 08 July 2019 17:53
To: Oakden Joseph <JosephOakden@tfl.gov.uk>; Gabbitas, Tim <tim.gabbitas@wsp.com>
Cc: Seiler Clare <ClareSeiler@tfl.gov.uk>
Subject: RE: Hillingdon Gardens (Former Master Brewer Site) - New Scheme and Application

Hi Joseph

Please could you confirm that for the Stage 1 RSA, you require us to commission the survey and provide a designer's response, and then send the report over to yourselves for review?

Thanks

Ben Smith
Transport Planner

T+ 44 (0)20 7314 4577

From: Smith, Ben
Sent: 05 July 2019 16:21
To: Oakden Joseph <JosephOakden@tfl.gov.uk>; Gabbitas, Tim <tim.gabbitas@wsp.com>
Cc: Seiler Clare <ClareSeiler@tfl.gov.uk>
Subject: RE: Hillingdon Gardens (Former Master Brewer Site) - New Scheme and Application

Hi Joseph, Clare

Thanks for your flexibility RE payment, I forwarded the invoice to the client yesterday morning and trust that the PO will be with you soon.

Unfortunately I am no longer able to attend as I have a clash, so it will just be Tim from WSP. As well as Tim, we expect Joao Bravo da Costa from Collado Collins Architects, Sarah Hiscutt from GL Hearn (planners) and Ben Johnson from Inland Homes to attend.

Thanks for setting up the agenda and I hope all goes well on Monday.

Best regards

Ben Smith
Transport Planner

T+ 44 (0)20 7314 4577

From: Oakden Joseph [mailto:JosephOakden@tfl.gov.uk]
Sent: 04 July 2019 11:23
To: Smith, Ben <Ben.J.Smith@wsp.com>; Gabbitas, Tim <tim.gabbitas@wsp.com>
Cc: Reed, Jamie <jamie.reed@wsp.com>; Seiler Clare <ClareSeiler@tfl.gov.uk>
Subject: RE: Hillingdon Gardens (Former Master Brewer Site) - New Scheme and Application

Hi Ben/Tim,

Please see the attached agenda for Monday's meeting. Please can you confirm the attendees listed on the agenda are correct so that I can let our reception know of your arrival.

Given the timescales, on this occasion if the payment is not received prior to the meeting we will still go ahead, however please ensure that payment is arranged as soon as possible.

You may have been to our Stratford offices previously, however if not the address is listed below. From Stratford station head towards the Olympic Stadium and the office is on the left before the Aquatics Centre.

Please do not hesitate to contact me if you have any questions prior to the meeting and I look forward to seeing you on Monday.

Kind regards,

Joseph Oakden
Assistant Planner (West) | Spatial Planning
Transport for London 9B5, 5 Endeavour Square, Westfield Avenue, London | E20 1JN
Phone: (020) 7126 4898 | Auto: 64898 | Email: JosephOakden@tfl.gov.uk

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From: Seiler Clare
Sent: 04 July 2019 09:26
To: Smith, Ben; Gabbitas, Tim; Oakden Joseph
Cc: Reed, Jamie
Subject: RE: Hillingdon Gardens (Former Master Brewer Site) - New Scheme and Application

Hi Ben, thanks for providing the case material.

Please find your invoice attached.

Kind regards,
Clare

Clare Seiler – TfL Spatial Planning
T: 020 7027 9639, Auto: 59639

From: Smith, Ben <Ben.J.Smith@wsp.com>
Sent: 03 July 2019 17:00
To: Seiler Clare <ClareSeiler@tfl.gov.uk>; Gabbitas, Tim <tim.gabbitas@wsp.com>; Oakden Joseph <JosephOakden@tfl.gov.uk>
Cc: Reed, Jamie <jamie.reed@wsp.com>
Subject: RE: Hillingdon Gardens (Former Master Brewer Site) - New Scheme and Application

Hi Clare

Please see attached the transport scoping note relating to Hillingdon Gardens. I have also attached the latest GLA presentation which should provide a useful background on the scheme.

Have you heard from your admin team on whether the invoice has been set up for the pre-app fee?

Thanks

Ben Smith
Transport Planner

T+ 44 (0)20 7314 4577

From: Smith, Ben
Sent: 02 July 2019 17:29
To: Seiler Clare <ClareSeiler@tfl.gov.uk>; Gabbitas, Tim <tim.gabbitas@wsp.com>; Oakden Joseph <JosephOakden@tfl.gov.uk>
Cc: Reed, Jamie <jamie.reed@wsp.com>
Subject: RE: Hillingdon Gardens (Former Master Brewer Site) - New Scheme and Application

Hi Clare

Thanks for actioning this. We will raise a purchase order to send the payment over immediately when we receive the invoice.

We will separately send over an information pack including a site plan and the scoping report as soon as possible.

Thanks

Ben Smith
Transport Planner

T+ 44 (0)20 7314 4577

From: Seiler Clare [mailto:ClareSeiler@tfl.gov.uk]
Sent: 01 July 2019 20:16
To: Smith, Ben <Ben.J.Smith@wsp.com>; Gabbitas, Tim <tim.gabbitas@wsp.com>; Oakden Joseph <JosephOakden@tfl.gov.uk>

Cc: Reed, Jamie <jamie.reed@wsp.com>
Subject: RE: Hillingdon Gardens (Former Master Brewer Site) - New Scheme and Application

Thanks Ben. I have asked our admin team to action this asap as I would like to go ahead with Monday's meeting, I don't really want to go through the rigmarole of finding availability again. They should issue an invoice and you will need to pay asap and apparently a purchase order is also required.

If you could issue an entirely new pack of materials that would be helpful.

Many thanks,
Clare

Clare Seiler – TfL Spatial Planning
T: 020 7027 9639, Auto: 59639

From: Smith, Ben <Ben.J.Smith@wsp.com>
Sent: 01 July 2019 17:54
To: Seiler Clare <ClareSeiler@tfl.gov.uk>; Gabbitas, Tim <tim.gabbitas@wsp.com>; Oakden Joseph <JosephOakden@tfl.gov.uk>
Cc: Reed, Jamie <jamie.reed@wsp.com>
Subject: RE: Hillingdon Gardens (Former Master Brewer Site) - New Scheme and Application

Hi Clare

Please see attached the pre-app request form associated with Hillingdon Gardens. The scoping note will follow in the coming days so that you have time to review prior to Monday's meeting. We can also issue a draft layout if this is helpful. The other items (e.g. red line boundary, site location plan) do not change from the previous scheme iterations, though we can send these over to you if you require?

Thanks

Ben Smith
Transport Planner

wsp

T+ 44 (0)20 7314 4577

From: Seiler Clare [mailto:ClareSeiler@tfl.gov.uk]
Sent: 01 July 2019 11:25
To: Gabbitas, Tim <tim.gabbitas@wsp.com>; Oakden Joseph <JosephOakden@tfl.gov.uk>
Cc: Smith, Ben <Ben.J.Smith@wsp.com>; Reed, Jamie <jamie.reed@wsp.com>
Subject: RE: Hillingdon Gardens (Former Master Brewer Site) - New Scheme and Application

Hi Tim, Ben,

We can't find your completed pre-app request form in our files? And without this we can't raise an invoice. Can I ask that you send (or re-send if it's gone astray) asap to SpatialPlanning@tfl.gov.uk, copy me in to be sure. Form attached.

And if you could forward your scoping note so we have time to review in advance of Monday that would be great.

Thanks
Clare

Clare Seiler – TfL Spatial Planning
T: 020 7027 9639, Auto: 59639

From: Gabbitas, Tim [mailto:tim.gabbitas@wsp.com]
Sent: 25 June 2019 13:38
To: Seiler Clare; Oakden Joseph
Cc: Smith, Ben; Reed, Jamie
Subject: RE: Hillingdon Gardens (Former Master Brewer Site) - New Scheme and Application

Thanks, Clare.

I've updated the meeting invitation accordingly. Please feel free to forward the invitation onto any of your colleagues at TfL who may need to attend.

Best regards,

Tim

Tim Gabbitas
Director

M+44 (0)7881 267 762
F+44 (0)20 7314 5111

WSP House
70 Chancery Lane
London WC2A 1AF
United Kingdom

wsp.com

From: Seiler Clare [mailto:ClareSeiler@tfl.gov.uk]
Sent: 25 June 2019 11:24
To: Gabbitas, Tim <tim.gabbitas@wsp.com>; Oakden Joseph <JosephOakden@tfl.gov.uk>
Cc: Smith, Ben <Ben.J.Smith@wsp.com>; Reed, Jamie <jamie.reed@wsp.com>
Subject: RE: Hillingdon Gardens (Former Master Brewer Site) - New Scheme and Application

Hi Tim, quick update on venue – 5 Endeavour Square, Stratford (as per my sig below) . Can you let Joe know if you've not visited ES before and need some directions, I think the postcode works in Google maps now, which it didn't for ages.

Thanks

Clare Seiler
Principal Area Planner | Spatial Planning
Phone: 0207 027 9639 (auto: 59639)
9B5, 5 Endeavour Square, Westfield Avenue, London E20 1JN | Email: ClareSeiler@tfl.gov.uk

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From: Gabbitas, Tim <tim.gabbitas@wsp.com>
Sent: 25 June 2019 10:11
To: Seiler Clare <ClareSeiler@tfl.gov.uk>; Oakden Joseph <JosephOakden@tfl.gov.uk>
Cc: Smith, Ben <Ben.J.Smith@wsp.com>; Reed, Jamie <jamie.reed@wsp.com>
Subject: RE: Hillingdon Gardens (Former Master Brewer Site) - New Scheme and Application

Hi Clare,

Thanks for confirming the 8th July. I'll send out a meeting invitation. Please confirm as soon as you can RE the venue. We will process the payment ASAP to ensure you receive it before the 4th July deadline.

I haven't been asked to attend today's meeting with the GLA, so I don't think it's a problem that you won't be there. We can focus on the transport-related issues at our meeting on the 8th.

Best regards,

Tim

Tim Gabbitas
Director

wsp

M+44 (0)7881 267 762
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70 Chancery Lane
London WC2A 1AF
United Kingdom

wsp.com

From: Seiler Clare [mailto:ClareSeiler@tfl.gov.uk]
Sent: 25 June 2019 09:11
To: Gabbitas, Tim <tim.gabbitas@wsp.com>; Oakden Joseph <JosephOakden@tfl.gov.uk>
Cc: Smith, Ben <Ben.J.Smith@wsp.com>; Reed, Jamie <jamie.reed@wsp.com>
Subject: RE: Hillingdon Gardens (Former Master Brewer Site) - New Scheme and Application

Hi Tim,

That's fine – Monday 8th July at 10am, either at our Stratford offices or Palestra, most likely Stratford, I'll confirm as soon as I can. Joe probably mentioned this but please can you make sure payment is made before the meeting (deadline midday on Thursday 4th July) otherwise we have to cancel the meeting.

Also, apologies, I won't be the GLA meeting this morning as I can't travel into London today, but I'll send the case officer a few lines and we have the TfL meeting in the diary for 8th July now. Hopefully that's ok, do let me know if you have any questions I can help with in the meantime.

Kind regards,
Clare

Clare Seiler – TfL Spatial Planning
T: 020 7027 9639, Auto: 59639

From: Gabbitas, Tim <tim.gabbitas@wsp.com>
Sent: 24 June 2019 18:58
To: Oakden Joseph <JosephOakden@tfl.gov.uk>
Cc: Smith, Ben <Ben.J.Smith@wsp.com>; Reed, Jamie <jamie.reed@wsp.com>; Seiler Clare <ClareSeiler@tfl.gov.uk>
Subject: RE: Hillingdon Gardens (Former Master Brewer Site) - New Scheme and Application

Thanks, Joe.

Clare – can we confirm the morning of Monday 8th July for our meeting on Hillingdon Gardens.

Attendees from our side are likely to include WSP, the architects (Collado Collins), the planning consultant (GL Hearn) and possibly the client (Inland Homes plc). I will confirm names nearer the time.

Best regards,

Tim

Tim Gabbitas
Director

M+44 (0)7881 267 762
F+44 (0)20 7314 5111

WSP House
70 Chancery Lane
London WC2A 1AF
United Kingdom

wsp.com

From: Oakden Joseph [mailto:JosephOakden@tfl.gov.uk]
Sent: 20 June 2019 15:50
To: Gabbitas, Tim <tim.gabbitas@wsp.com>

Cc: Smith, Ben <Ben.J.Smith@wsp.com>; Reed, Jamie <jamie.reed@wsp.com>; Seiler Clare <ClareSeiler@tfl.gov.uk>
Subject: RE: Hillingdon Gardens (Former Master Brewer Site) - New Scheme and Application

Hi Tim,

I will liaise will colleagues to find their availability within these dates, I have availability on the 8th and 10th at the moment.

I am on annual leave next week, so Clare Seiler (cc'ed in), who will also be attending the pre-app, has kindly agreed to organise in my absence. Please can you therefore ensure Clare is copied in to any correspondence.

Best regards,
Joe

Joseph Oakden
Assistant Planner (West) | Spatial Planning
Transport for London 9B5, 5 Endeavour Square, Westfield Avenue, London | E20 1JN
Phone: (020) 7126 4898 | Auto: 64898 | Email: JosephOakden@tfl.gov.uk

TRANSPORT FOR LONDON
EVERY JOURNEY MATTERS

We have recently made changes to our pre-application service and charges, and introduced a new Initial Screening process. For more info please visit: https://tfl.gov.uk/info-for/urban-planning-and-construction/planning-applications/pre-application-services

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From: Gabbitas, Tim [mailto:tim.gabbitas@wsp.com]
Sent: 20 June 2019 14:40
To: Oakden Joseph
Cc: Smith, Ben; Reed, Jamie; Seiler Clare
Subject: RE: Hillingdon Gardens (Former Master Brewer Site) - New Scheme and Application

Hi Joe,

Thanks for coming back to me so quickly.

We will complete the form, as requested, and get it sent back to you ASAP.

In terms of meeting dates, we would prefer the week beginning 8th July if at all possible given the tight timescales we are working to with regards to the submission of the planning application.

I'm currently available Monday 8th July (AM), Wednesday 10th July (AM) or anytime on Thursday 11th July. Hopefully one of those will be suitable for you.

Best regards,

Tim

Tim Gabbitas
Director

wsp

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From: Oakden Joseph [mailto:JosephOakden@tfl.gov.uk]
Sent: 19 June 2019 15:09
To: Gabbitas, Tim <tim.gabbitas@wsp.com>
Cc: Smith, Ben <Ben.J.Smith@wsp.com>; Reed, Jamie <jamie.reed@wsp.com>; Seiler Clare <ClareSeiler@tfl.gov.uk>
Subject: RE: Hillingdon Gardens (Former Master Brewer Site) - New Scheme and Application

Hi Tim,

I agree it would be very beneficial to meet to further discuss the transport aspects of the scheme in more detail, where I can also invite colleagues along from other areas of TfL who can provide technical advice.

In terms of arranging a meeting, firstly please fill out the attached form and send to spatialplanning@tfl.gov.uk who will be able to process the request and arrange payment.

Looking at dates, I will liaise with colleagues to find out their availability, however I will initially be looking at dates week commencing 8th July/15th July. Would there be any dates during these weeks which you cannot do/ would prefer?

Please do not hesitate to contact me if you have any queries.

Kind regards,
Joe

Joseph Oakden
Assistant Planner (West) | Spatial Planning
Transport for London 9B5, 5 Endeavour Square, Westfield Avenue, London | E20 1JN
Phone: (020) 7126 4898 | Auto: 64898 | Email: JosephOakden@tfl.gov.uk

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---

From: Gabbitas, Tim [mailto:tim.gabbitas@wsp.com]
Sent: 19 June 2019 14:13
To: Oakden Joseph

Cc: Smith, Ben; Reed, Jamie
Subject: Hillingdon Gardens (Former Master Brewer Site) - New Scheme and Application

Hi Joe,

Further to our initial pre-application meeting with the GLA and yourself on 7th May 2019 with regards to the above scheme, I wanted to reach out to you directly to provide further details on the new scheme that is being taken forward for planning.

As stated in the May meeting, the new scheme will be seeking a much reduced parking ratio when compared with the previous Meyer Homes of c.0.3 – 0.35 parking bays per dwelling. This is something that Clare Seiler was pushing for historically, so we hope we will have your support in pursuing this provision. We are seeking to ensure that the highway impact will be no worse (and potentially reduced) when compared with the 2017 Meyer Homes scheme such that the extensive modelling assessment work that has been undertaken over the past 2 years can also be used to support this application.

The scheme layout (including number of units) is still being developed by the wider design team, but we are currently preparing a Transport Scoping Report for the new application, which we hope to be in a position to share with you sometime next week.

Following this, we would be keen to arrange a meeting with TfL to discuss the transport aspects of the scheme in more detail. In light of this, could you give me your availability for a meeting in late June / early July so that we can diarise something?

In the meantime, please don't hesitate to contact myself, Jamie or Ben should you have any queries.

Best regards,

Tim

Tim Gabbitas
Director

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Appendix B

TRANSPORT ASSESSMENT ADDENDUM - 2019 TRAFFIC SURVEYS

November 2019

Hillingdon Gardens, Freezeland Way, Hillingdon

TRANSPORT ASSESSMENT ADDENDUM NOTE – 2019 TRAFFIC SURVEYS

INTRODUCTION

This Transport Assessment Addendum Note has been produced to accompany the Transport Assessment submitted in September 2019 in support of the proposed development at the Former Master Brewer site in Hillingdon, northwest London (known as ‘Hillingdon Gardens’).

As part of the pre-application process, Transport for London (TfL) requested that new traffic surveys be commissioned on the local road network immediately surrounding the development site to assess whether the baseline conditions had changed significantly since the previous surveys were conducted in 2017. These surveys would then determine whether any further highway modelling is required to accompany the planning application. It was agreed with TfL that these surveys would take place following the school summer holidays and that the results would be presented as a Transport Assessment Addendum note following the main submission of the planning application.

To gauge a general understanding of how traffic conditions may have changed over the past two years, the ATC surveys undertaken in 2017 were repeated during late September / early October 2019. Two cameras were also installed at Hillingdon Circus junction, as they were during the 2017 survey, so that video footage of the traffic conditions at the junction during the morning and evening peak periods could be reviewed and compared. The locations for the ATCs was consistent in 2019 with those used in 2017 to ensure a ‘like for like’ comparison could be made. To further assess the change in traffic conditions at Hillingdon Circus between 2017 and 2019, journey time data was obtained from Traffic Master for six journeys through Hillingdon Circus, as agreed with TfL.

It was determined that if the survey results and journey time data for 2019 suggested a significant change in traffic conditions on the local road network surrounding the development site when compared with the 2017 survey results, then further MCC and journey time surveys could be undertaken in line with the full scope of the 2017 survey. It would then be ascertained whether any updates to the 2017 traffic impact assessment modelling work would be required.

This note presents the results of the 2019 ATC and video surveys and compares the findings against the 2017 survey results in order to establish whether there has been a significant change in traffic conditions on the local road network.

For reference, the full scope of the 2017 surveys is included at **Appendix A**, with the ATC data for 2017 and 2019 included at **Appendix B** and **Appendix C** respectively, and journey time data contained at **Appendix D**.

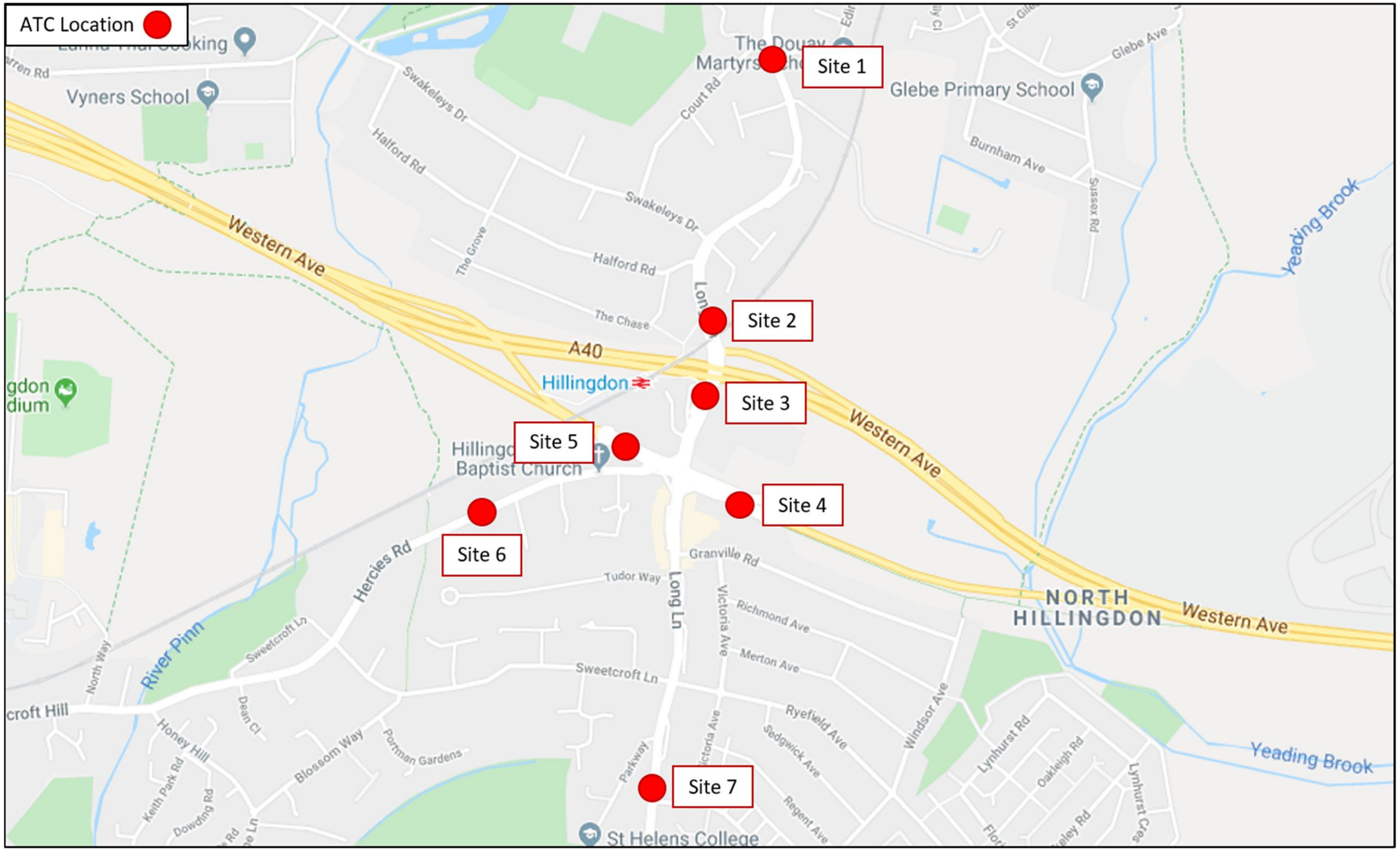
Following a comprehensive review of the data outlined in this Transport Assessment Addendum, TfL has confirmed that no further traffic impact assessment is required.

ATC SURVEYS

November 2019

ATC surveys were conducted for two full weeks between Friday 27th September 2019 and Thursday 10th October 2019. The methodology and location of the surveys was consistent with the 2017 survey. The survey sites are shown in **Figure 1**.

Figure 1: ATC survey scope



The surveyed locations are as follows:

- Site 1 – Long Lane (north of Swakeleys Drive)
- Site 2 – Long Lane (north of A40 eastbound on-slip)
- Site 3 – Long Lane (north of Hillingdon Circus)
- Site 4 – Freezeland Way westbound (east of Hillingdon Circus)
- Site 5 – Western Avenue (west of Hillingdon Circus)
- Site 6 – Hercies Road (south of Western Avenue)
- Site 7 – Long Lane (south of Hillingdon Circus)

The ATC data has been extracted and analysed against the 2017 data for the following five time periods:

- Weekday AM peak hour (07:15-08:15)
- Weekday AM total (07:00-10:00)
- Weekday PM peak hour (16:30-17:30)
- Weekday PM total (16:00-19:00)
- AADT (Mon-Sun 00:00-00:00)

As there were a small number of problems with the ATCs in week 2 (4^{th}-10^{th} October 2019), only the week 1 (27^{th} September – 3^{rd} October 2019) data has been reviewed. The findings of the ATC survey and a comparison against the 2017 data is detailed below for each location in turn. A full copy of the week 1 2019 data is contained in **Appendix C**.

SITE 1 – LONG LANE (NORTH OF SWAKELEYS DRIVE)

The results of the 2017 and 2019 surveys at Long Lane (north of Swakeleys Drive) are compared in **Table 1**.

Table 1: Long Lane (north of Swakeleys Drive) – Comparison of 2017 vs 2019 Survey Results

Site 1	AM peak (07:15-08:15)			AM total (07:00-10:00)			PM peak (16:30-17:30)			PM total (16:00-19:00)			AADT (00:00-00:00)		
	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total
2017	692	899	1591	1964	2551	4515	625	535	1160	2052	1703	3754	8685	9004	17690
2019	721	971	1692	1839	2770	4609	708	529	1237	2030	1551	3581	8884	9524	18408
Net Change	+29	+73	+101	-126	+219	+94	+83	-6	+77	-22	-151	-173	+199	+520	+718
% Change	+4%	+8%	+6%	-6%	+9%	+2%	13%	-1%	+7%	-1%	-9%	-5%	+2%	+6%	+4%

Table 1 shows the following:

§ A small overall **increase** in traffic flows of **6%** (+101 vehicles) during the **AM peak hour**, with a smaller **increase** of **2%** (+94 vehicles) across the 3-hour **AM peak period**

§ A small overall **increase** in traffic flows of **7%** (+77 vehicles) during the **PM peak hour**, with a small **reduction** of **5%** (-173 vehicles) across the 3-hour **PM peak period**

§ Across the **entire day**, there has been a small **increase** in traffic flows of **4%** (+718 vehicles) recorded at this location

SITE 2 – LONG LANE (NORTH OF A40 SLIP)

The results of the 2017 and 2019 surveys at Long Lane (north of A40 slip) are compared in **Table 2**.

Table 2: Long Lane (north of A40 slip) – Comparison of 2017 vs 2019 Survey Results

Site 2	AM peak (07:15-08:15)			AM total (07:00-10:00)			PM peak (16:30-17:30)			PM total (16:00-19:00)			AADT (00:00-00:00)		
	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total
2017	889	991	1881	2478	2858	5336	1040	664	1703	3115	2053	5167	10426	9279	19705
2019	931	965	1897	2390	2897	5287	1030	676	1706	2974	1904	4878	10764	10393	21157
Net Change	+42	-26	+16	-88	+39	-49	-10	+13	+3	-141	-148	-289	+338	+1114	+1452
% Change	+5%	-3%	+1%	-4%	+1%	-1%	-1%	+2%	0%	-5%	-7%	-6%	+3%	+12%	+7%

Table 2 shows the following:

§ An insignificant **increase** in traffic flows of **1%** (+16 vehicles) during the **AM peak hour**, and an insignificant **decrease** of **1%** (-49 vehicles) across the 3-hour **AM peak period**

§ **No change** in traffic flows during the **PM peak hour**, with a small **reduction** of **6%** (-289 vehicles) across the 3-hour **PM peak period**

§ Across the **entire day**, there has been a small **increase** in traffic flows of 7**%** (718 vehicles) recorded at this location

SITE 3 – LONG LANE (NORTH OF HILLINGDON CIRCUS)

The results of the 2017 and 2019 surveys at Long Lane (north of Hillingdon Circus) are compared in **Table 3**.

Table 3: Long Lane (north of Hillingdon Circus) – Comparison of 2017 vs 2019 Survey Results

Site 3	AM peak (07:15-08:15)			AM total (07:00-10:00)			PM peak (16:30-17:30)			PM total (16:00-19:00)			AADT (00:00-00:00)		
	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total
2017	1179	788	1967	3428	2308	5736	1420	565	1984	4298	1777	6075	15145	8100	23244
2019	1127	760	1887	3019	2250	5269	1405	636	2041	4127	1838	5965	15064	8989	24053
Net change	-52	-28	-80	-409	-58	-467	-15	+71	+56	-171	+61	-110	-81	+889	+809
% Change	-4%	-4%	-4%	-12%	-3%	-8%	-1%	+13%	+3%	-4%	+3%	-2%	-1%	+11%	+3%

Table 3 shows the following:

- A small **decrease** in traffic flows of **4%** (-80 vehicles) during the **AM peak hour**, and a larger **decrease** of **8%** (-467 vehicles) across the 3-hour **AM peak period**
- A small **increase** in traffic flows of **3%** (+56 vehicles) during the **PM peak hour**, with a small **decrease** of **2%** (-110 vehicles) across the 3-hour **PM peak period**
- Across the **entire day**, there has been a small **increase** in traffic flows of **3%** (809 vehicles) recorded at this location

SITE 4 – FREEZELAND WAY WESTBOUND (EAST OF HILLINGDON CIRCUS)

The results of the 2017 and 2019 surveys at Freezeland Way westbound (east of Hillingdon Circus) are compared in **Table 4**.

Table 4: Freezeland Way westbound (east of Hillingdon Circus) – Comparison of 2017 vs 2019 Survey Results

Site 4	AM peak (07:15-08:15)			AM total (07:00-10:00)			PM peak (16:30-17:30)			PM total (16:00-19:00)			AADT (00:00-00:00)		
	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total
2017	0	811	811	0	2201	2201	0	707	707	0	2163	2163	0	9327	9327
2019	0	692	692	0	1890	1890	0	577	577	0	1700	1700	0	8958	8958
Net change	0	-119	-119	0	-311	-311	0	-130	-130	0	-463	-463	0	-368	-368
% Change	/	-15%	-15%	/	-14%	-14%	/	-18%	-18%	/	-21%	-21%	/	-4%	-4%

Table 4 shows the following:

- A significant **decrease** in traffic flows of **15%** (-119 vehicles) during the **AM peak hour**, and a similar **decrease** of **14%** (-311 vehicles) across the 3-hour **AM peak period**
- A significant **decrease** in traffic flows of **18%** (+130 vehicles) during the **PM peak hour**, with a more substantial **decrease** of **21%** (-463 vehicles) across the 3-hour **PM peak period**
- Across the **entire day**, there has been a small **decrease** in traffic flows of **4%** (-368 vehicles) recorded at this location

SITE 5 – WESTERN AVENUE (WEST OF HILLINGDON CIRCUS)

The results of the 2017 and 2019 surveys at Western Avenue (west of Hillingdon Circus) are compared in **Table 5**.

Table 5: Western Avenue (west of Hillingdon Circus) – Comparison of 2017 vs 2019 Survey Results

Site 5	AM peak (07:15-08:15)			AM total (07:00-10:00)			PM peak (16:30-17:30)			PM total (16:00-19:00)			AADT (00:00-00:00)		
	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total
2017	834	709	1544	2083	2042	4125	1022	1166	2187	2927	3335	6261	8086	8827	16913
2019	682	695	1377	1671	1790	3461	749	1139	1888	2181	3303	5484	7104	8895	15999
Net change	-153	-14	-167	-412	-253	-665	-273	-26	-299	-745	-32	-777	-982	+68	-914
% Change	-18%	-2%	-11%	-20%	-12%	-16%	-27%	-2%	-14%	-25%	-1%	-12%	-12%	+1%	-5%

Table 5 shows the following:

- A significant **decrease** in traffic flows of **11%** (-167 vehicles) during the **AM peak hour**, and more substantial **decrease** of **16%** (-665 vehicles) across the 3-hour **AM peak period**
- A significant **decrease** in traffic flows of **14%** (-299 vehicles) during the **PM peak hour**, with a **decrease** of **12%** (-777 vehicles) across the 3-hour **PM peak period**
- Across the **entire day**, there has been a **decrease** in traffic flows of **5%** (-914 vehicles) recorded at this location

SITE 6 – HERCIES ROAD (SOUTH OF WESTERN AVENUE)

The results of the 2017 and 2019 surveys at Hercies Road (south of Western Avenue) are compared in **Table 6**.

Table 6: Hercies Road (south of Western Avenue) – Comparison of 2017 vs 2019 Survey Results

Site 6	AM peak (07:15-08:15)			AM total (07:00-10:00)			PM peak (16:30-17:30)			PM total (16:00-19:00)			AADT (00:00-00:00)		
	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total
2017	318	683	1001	826	1698	2523	808	309	1117	2110	927	3037	3599	4071	7670
2019	273	606	880	644	1611	2255	875	254	1129	2379	756	3134	3864	3825	7689
Net change	-45	-76	-121	-182	-86	-268	+66	-55	+12	+268	-171	+97	+265	-246	+19
% Change	-14%	-11%	-12%	-22%	-5%	-11%	+8%	-18%	+1%	+13%	-18%	+3%	+7%	-6%	0%

Table 6 shows the following:

- A significant **decrease** in traffic flows of **12%** (-121 vehicles) during the **AM peak hour**, and a **decrease** of **11%** (-268 vehicles) across the 3-hour **AM peak period**
- An insignificant **increase** in traffic flows of **1%** (+12 vehicles) during the **PM peak hour**, and a small **increase** of **3%** (+97 vehicles) across the 3-hour **PM peak period**
- Across the **entire day**, there has been no significant change in traffic flows recorded at this location

SITE 7 – LONG LANE (SOUTH OF HILLINGDON CIRCUS)

The results of the 2017 and 2019 surveys at Long Lane (south of Hillingdon Circus) are compared in **Table 7**.

Table 7: Long Lane (south of Hillingdon Circus) – Comparison of 2017 vs 2019 Survey Results

Site 7	AM peak (07:15-08:15)			AM total (07:00-10:00)			PM peak (16:30-17:30)			PM total (16:00-19:00)			AADT (00:00-00:00)		
	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total
2017	508	770	1278	1703	2364	4067	542	777	1318	1835	2574	4409	9774	11691	21464
2019	457	577	1033	1374	1730	3104	491	632	1124	1490	1848	3338	9137	10340	19477
Net change	-51	-193	-244	-329	-634	-963	-50	-145	-195	-345	-727	-1072	-637	-1351	-1987
% Change	-10%	-25%	-19%	-19%	-27%	-24%	-9%	-19%	-15%	-19%	-28%	-24%	-7%	-12%	-9%

Table 7 shows the following:

§ A significant **decrease** in traffic flows of **19%** (-244 vehicles) during the **AM peak hour**, and more substantial **decrease** of **24%** (-963 vehicles) across the 3-hour **AM peak period**

§ A significant **decrease** in traffic flows of **15%** (-195 vehicles) during the **PM peak hour**, with a significant **decrease** of **24%** (-1,072 vehicles) across the 3-hour **PM peak period**

§ Across the **entire day**, there has been a significant **decrease** in traffic flows of **9%** (-1,987 vehicles) recorded at this location

HILLINGDON CIRCUS JUNCTION - TOTAL

The total number of flows passing through Hillingdon Circus in 2017 and 2019, based on the survey results at sites 3, 4, 5 and 7, are collated in **Table 8**.

Table 8: Hillingdon Circus – Comparison of 2017 vs 2019 Survey Results

Hill. Circus	AM peak (07:15-08:15)			AM total (07:00-10:00)			PM peak (16:30-17:30)			PM total (16:00-19:00)			AADT (00:00-00:00)		
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total
2017	2941	2658	5599	8296	7834	16130	2835	3362	6197	8702	10207	18910	35287	35662	70949
2019	2590	2399	4989	7185	6539	13724	2453	3177	5629	7210	9278	16488	34188	34299	68487
Net change	-351	-259	-610	-1110	-1295	-2406	-382	-186	-568	-1493	-929	-2422	-1099	-1363	-2462
% Change	-12%	-10%	-11%	-13%	-17%	-15%	-13%	-6%	-9%	-17%	-9%	-13%	-3%	-4%	-3%

Table 8 shows the following for Hillingdon Circus junction as a whole:

§ A significant **decrease** in traffic flows of **11%** (-610 vehicles) during the **AM peak hour**, and a more substantial **decrease** of **15%** (-2,406 vehicles) across the 3-hour **AM peak period**

§ A significant **decrease** in traffic flows of **9%** (-568 vehicles) during the **PM peak hour**, and a more substantial **decrease** of **13%** (-2,422 vehicles) across the 3-hour **PM peak period**

§ Across the **entire day**, there has been a **decrease** in traffic flows of **3%** (-2,462 vehicles) recorded at this location

November 2019

JOURNEY TIME DATA

Following discussions with TfL, it was advised that the most recent GPS journey time data available from Traffic Master be obtained and analysed for a number of routes through Hillingdon Circus junction. Journey time information for May and June 2019 was the most recent dataset available, and this has therefore been compared against the same data collected in May and June 2017.

The requested routes were the same as those recorded as part of the 2017 traffic surveys, together with an additional two-way route from Hercies Road to Granville Road; however, because there are elements of some routes that are not on the Integrated Transport Network, some of the routes were shortened slightly. The requested routes are as shown in **Figure 2**, with detailed mapping of each recorded route contained at **Appendix D**.

Figure 2: Requested journey time routes

As stated, some of the routes were shortened slightly. The recorded routes are as follows:

- Route 1 – southbound along Long Lane from the junction with Turnstone Close to the junction with Sweetcroft Lane / Ryefield Avenue
- Route 2 – northbound along Long Lane from the junction with Sweetcroft Lane / Ryefield Avenue to the junction with Turnstone Close
- Route 3 – eastbound along Western Avenue from the Morrisons roundabout to Hillingdon Circus
- Route 4 – westbound along Freezeland Way and Western Avenue from the loop to the Morrisons roundabout
- Route 5 – westbound along Western Avenue from the junction with Hercies Road to the Morrisons roundabout, then eastbound along Western Avenue to Hillingdon Circus, and southbound along Long Lane to the junction with Granville Road
- Route 6 – northbound along Long Lane from the junction with Granville Road to Hillingdon Circus, then westbound along Western Avenue to the junction with Hercies Road

The data obtained showed that along each route the hours with the longest average journey times were recorded at the following times:

- Weekday AM peak hour (08:00-09:00)
- Weekday PM peak hour (17:00-18:00)

The findings of the journey time comparison and analysis is detailed below for each route. A full copy of the data and analysis is contained in **Appendix D**.

AM PEAK HOUR – 08:00-09:00

The average journey time along each route during the AM peak period for each requested month is shown in **Table 9**.

Table 9: Journey time analysis – AM peak data

Route	Route ID	Direction	Average journey time (minutes)			
			May 2017	June 2017	May 2019	June 2019
Long Lane	R1	SB	6.31	4.85	4.67	5.06
	R2	NB	4.14	4.48	3.22	2.98
Western Avenue	R3	EB	1.98	2.21	1.60	1.76
	R4	WB	2.37	1.78	2.76	2.34
Hercies Road	R5	EB	3.16	3.35	2.49	2.77
	R6	WB	1.24	1.46	0.96	0.92

The average AM peak journey time across both months in 2017 and both months in 2019 is compared and analysed in **Table 10**.

Table 10: Journey time analysis – 2017 vs 2019 AM peak comparison

Route	Route ID	Direction	2017 average (minutes)	2019 average (minutes)	Comparison (minutes)	Time change (seconds)	Time change (percentage)
Long Lane	R1	SB	5.58	4.87	-0.71	-43	-15%
	R2	NB	4.31	3.10	-1.21	-73	-39%
Western Avenue	R3	EB	2.10	1.68	-0.42	-25	-25%
	R4	WB	2.07	2.55	+0.48	+29	+19%
Hercies Road	R5	EB	3.25	2.63	-0.63	-38	-24%
	R6	WB	1.35	0.94	-0.41	-25	-44%

Table 10 shows the following:

- A **decrease** in journey time of **15%** (-43 seconds) southbound along Long Lane, and a more significant **decrease** of **39%** (-73 seconds) northbound along Long Lane
- A **decrease** in journey time of **25%** (-25 seconds) eastbound along Western Avenue, and an **increase** of **19%** (+29 seconds) westbound along Western Avenue / Freezeland Way
- A **decrease** in journey time of **24%** (-38 seconds) eastbound / southbound from Hercies Road to Granville Road, and a more significant **decrease** of **44%** (-25 seconds) northbound / westbound from Granville Road to Hercies Road

Overall, the analysis shows that 5 out of 6 routes are displaying an improvement (shortening) in journey times, suggesting traffic conditions have improved since 2017.

PM PEAK HOUR – 17:00-18:00

The average journey time along each route during the PM peak period for each requested month is shown in **Table 11**.

Table 11: Journey time analysis – PM peak data

Route	Route ID	Direction	Average journey time (minutes)			
			May 2017	June 2017	May 2019	June 2019
Long Lane	R1	SB	3.64	3.65	3.91	3.26
	R2	NB	4.35	4.06	3.53	3.69
Western Avenue	R3	EB	1.80	1.77	2.36	1.50
	R4	WB	2.30	3.00	2.63	2.74
Hercies Road	R5	EB	3.07	3.03	3.58	2.57
	R6	WB	1.23	1.14	1.01	0.95

The average PM peak journey time across both months in 2017 and both months in 2019 is compared and analysed in **Table 12**.

Table 12: Journey time analysis – 2017 vs 2019 PM peak comparison

Route	Route ID	Direction	2017 average (minutes)	2019 average (minutes)	Comparison (minutes)	Time change (seconds)	Time change (percentage)
Long Lane	R1	SB	3.65	3.58	-0.06	-4	-2%
	R2	NB	4.21	3.61	-0.60	-36	-17%
Western Avenue	R3	EB	1.79	1.93	0.14	+9	+7%
	R4	WB	2.65	2.68	0.03	+2	+1%
Hercies Road	R5	EB	3.05	3.07	0.02	+1	+1%
	R6	WB	1.18	0.98	-0.20	-12	-20%

Table 10 shows the following:

§ A **decrease** in journey time of **2%** (-4 seconds) southbound along Long Lane, and a more significant **decrease** of **17%** (-36 seconds) northbound along Long Lane

§ An **increase** in journey time of **7%** (+9 seconds) eastbound along Western Avenue, and a smaller **increase** of **1%** (+2 seconds) westbound along Western Avenue / Freezeland Way

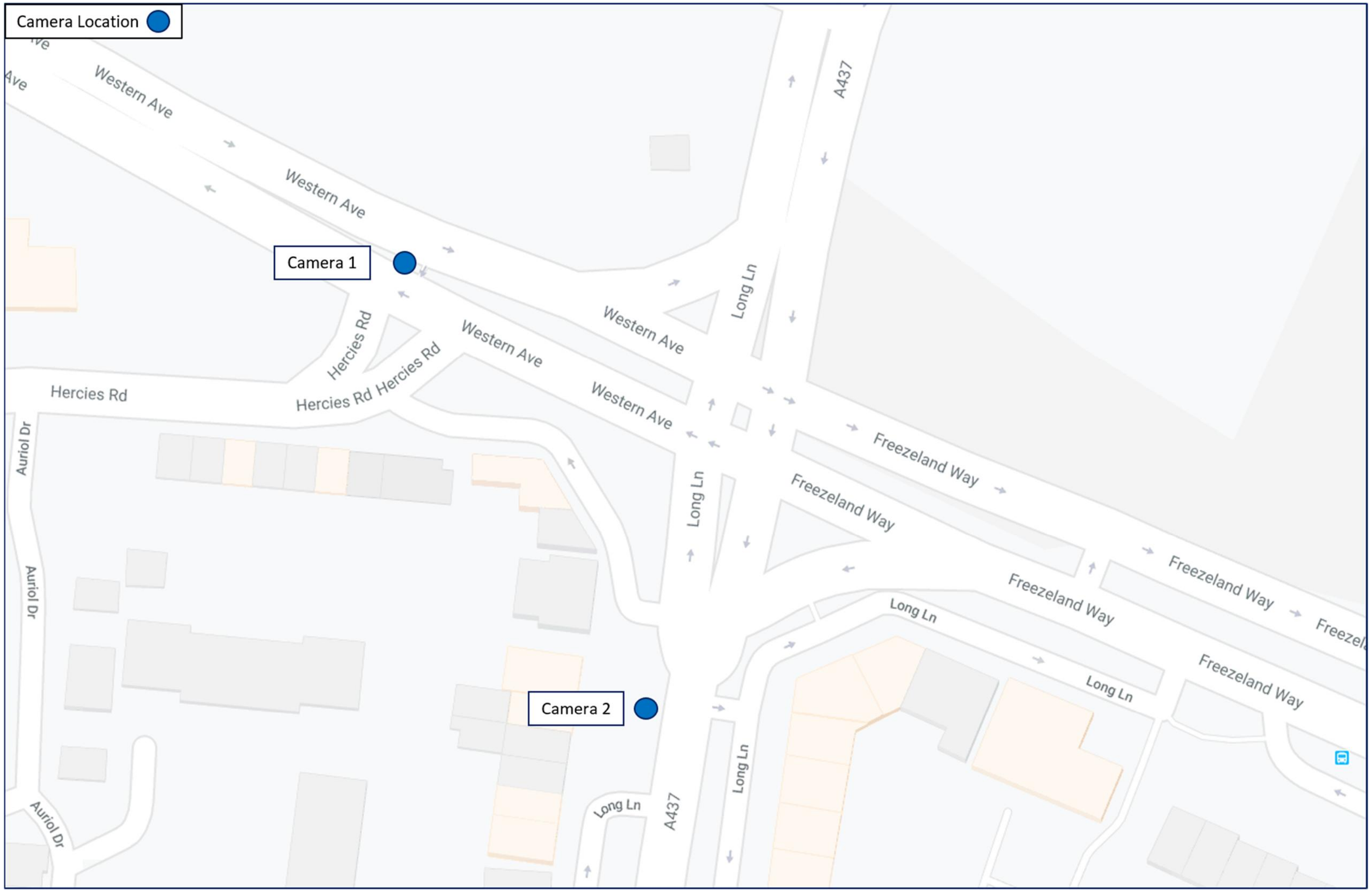
§ An **increase** in journey time of **1%** (+1 seconds) eastbound / southbound from Hercies Road to Granville Road, and a **decrease** of **20%** (-12 seconds) northbound / westbound from Granville Road to Hercies Road

Overall, the analysis shows that 5 out of 6 routes have shown either an improvement (shortening) or virtually no change in journey times, suggesting traffic conditions have improved or are no worse than in 2017.

VIDEO SURVEYS

Video footage was recorded at two separate locations close to Hillingdon Circus junction for two full weeks between Friday 27th September 2019 and Thursday 10th October 2019. The locations of the two cameras are shown in **Figure 3**.

Figure 3: Video survey camera locations



The only video footage recorded in the 2017 surveys was on Thursday 12th January 2017. It has therefore been deemed appropriate to assess these videos against footage recorded on Thursday 3rd October 2019.

In order to compare the survey footage, screenshots have been taken at 15-minute intervals during the AM and PM peak hours at the same stage in the signal cycle. These stages are:

- Camera 1 – as the traffic signals on the Western Avenue arm change to green
- Camera 2 – as the traffic signals on the Long Lane south arm change to green

The 15-minute intervals are:

- AM peak: 07:20, 07:35, 07:50, 08:05, 08:20
- PM peak: 16:35, 16:50, 17:05, 17:20, 17:35

The screenshots throughout the AM and PM peak hours at both cameras 1 and 2 are discussed below in turn.

It should be noted that the quality of the images captured during the 2017 video survey are of poor quality due to the dark and poor weather conditions; however, it is still possible to ascertain traffic conditions, including queue lengths and blocking back issues, by analysing this footage. The 2019 video footage is much clearer, as it was undertaken in daylight hours and the weather conditions were favourable.

A comparison of the junction conditions in 2017 and 2019, at the moment the lights on the Western Avenue arm change to green, is shown at 15-minute intervals for the AM peak hour within **Figure 4**, **Figure 5**, **Figure 6**, **Figure 7** and **Figure 8**.

Figure 4: AM peak – Camera 1: 07:20 (2017 vs 2019)

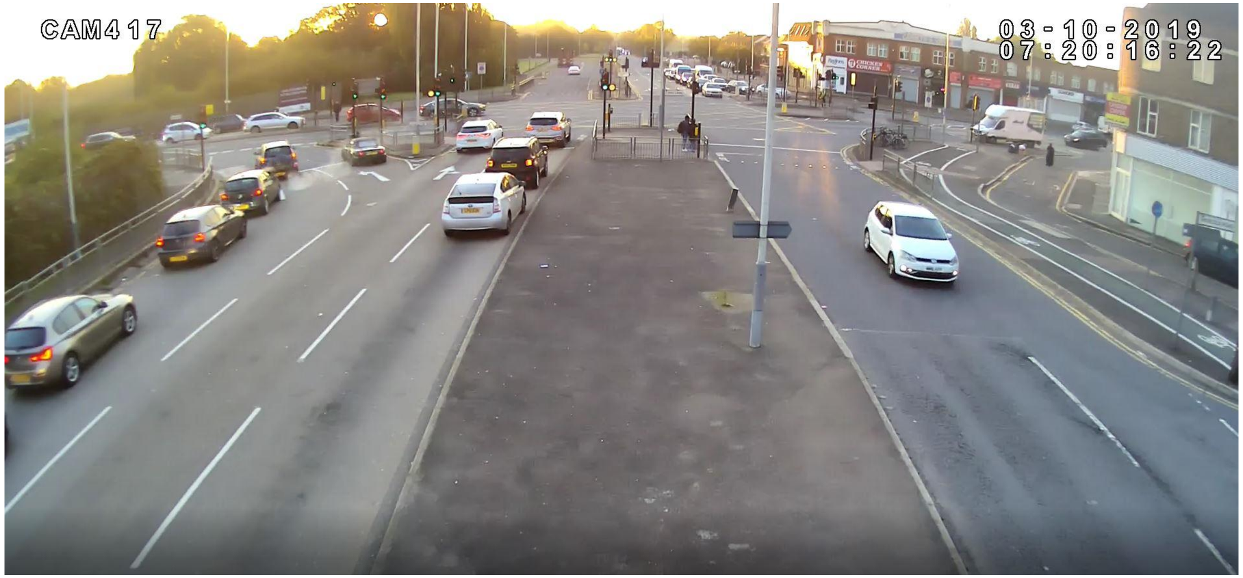
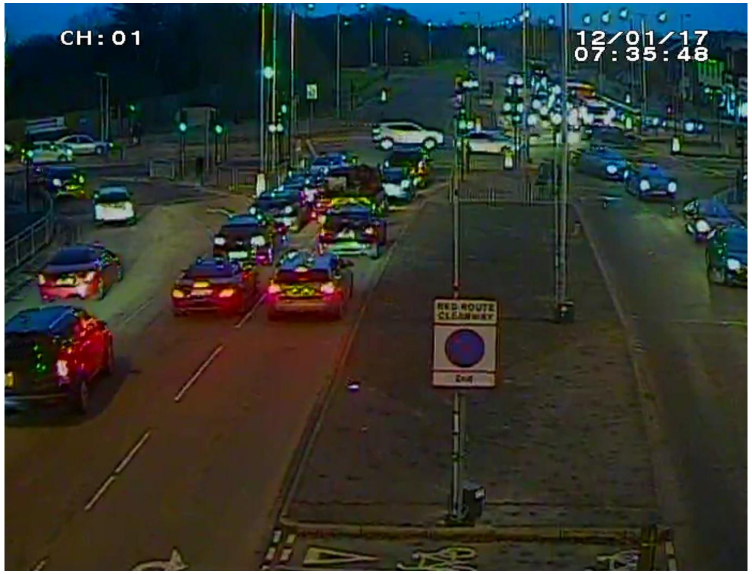


Figure 5: AM peak – Camera 1: 07:35 (2017 vs 2019)



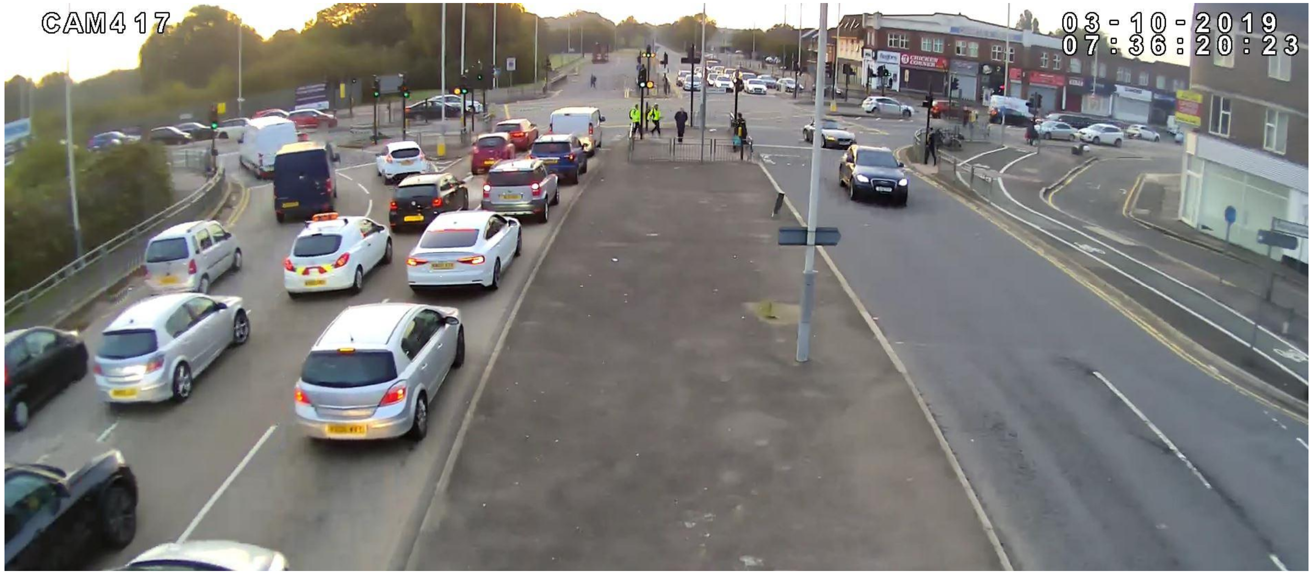


Figure 6: AM peak – Camera 1: 07:50 (2017 vs 2019)

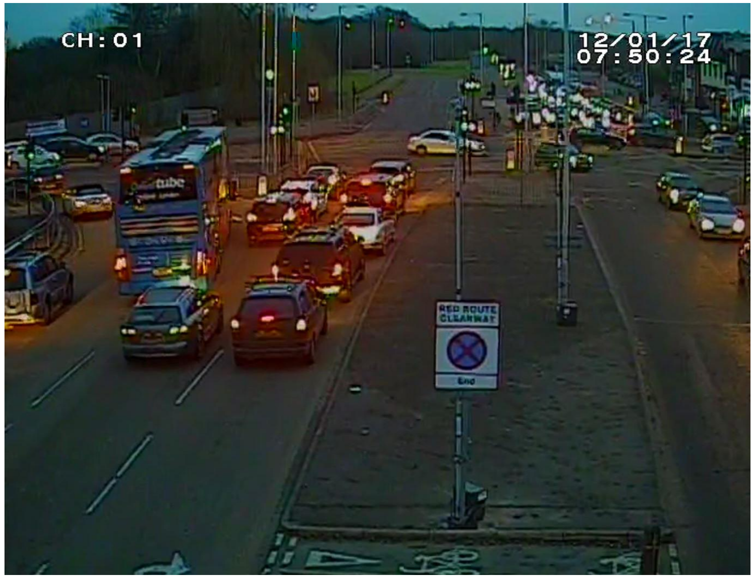


Figure 7: AM peak – Camera 1: 08:05 (2017 vs 2019)

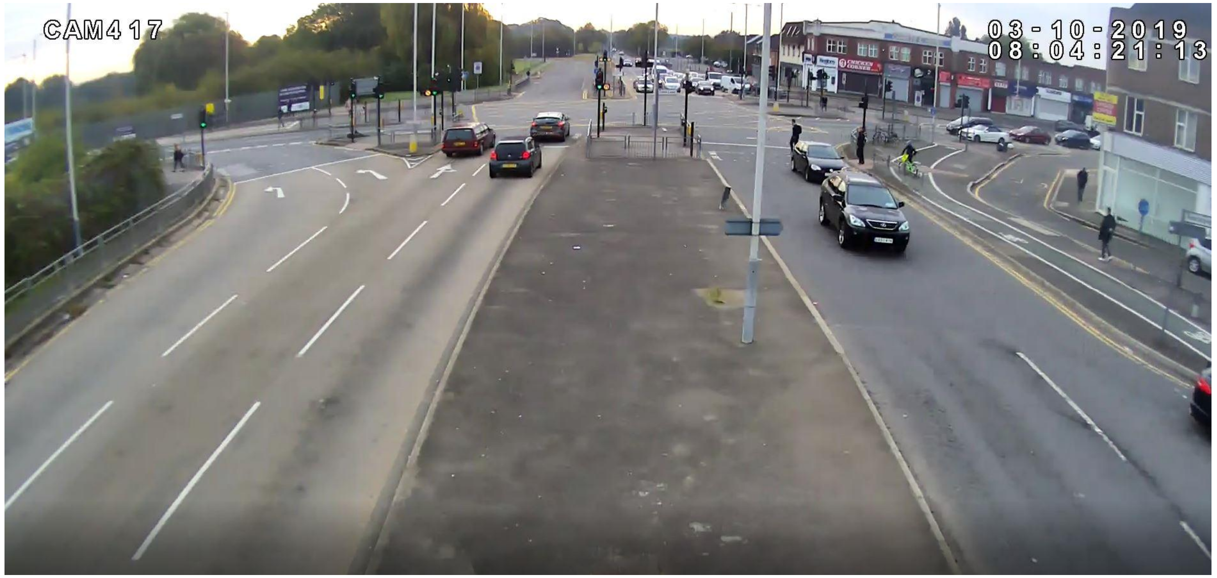


Figure 8: AM peak – Camera 1: 08:20 (2017 vs 2019)

As shown by the screenshots, there is little traffic queuing at 07:20 in both 2017 and 2019, though by 07:35 and 07:50 there are queues of up to 5 vehicles in 2017 and of 6 or more vehicles in 2019. However, as shown, in 2017 there are a number of vehicles turning right from Long Lane north into Western Avenue west that are blocking the junction. The lack of vehicles on Western Avenue westbound in 2019 suggests that the junction is clearing more effectively for traffic approaching from Long Lane. It is clear from these cameras that the number of vehicles queueing at the Freezeland Way is lower in 2019 than in 2017.

At around 08:05 it appears in both 2017 and 2019 that there is a lull in the number of vehicles using the junction. In 2019 it is visible that all vehicles using Long Lane north managed to clear the traffic lights, whilst the queue at both Western Avenue and Freezeland Way is minimal.

The junction appears to show similar conditions at 08:20 in both 2017 and 2019, with vehicles on the junction blocking traffic approaching from the Western Avenue arm. Again, it appears that in 2019 all vehicles that were queuing at Long Lane north managed to clear the junction in one signal cycle.

AM peak – Camera 2

A comparison of the junction conditions in 2017 and 2019, at the moment the lights on the Long Lane south arm change to green, is shown at 15-minute intervals for the AM peak hour within **Figure 9**, **Figure 10**, **Figure 11**, **Figure 12** and **Figure 13**.

Figure 9: AM peak – Camera 2: 07:20 (2017 vs 2019)

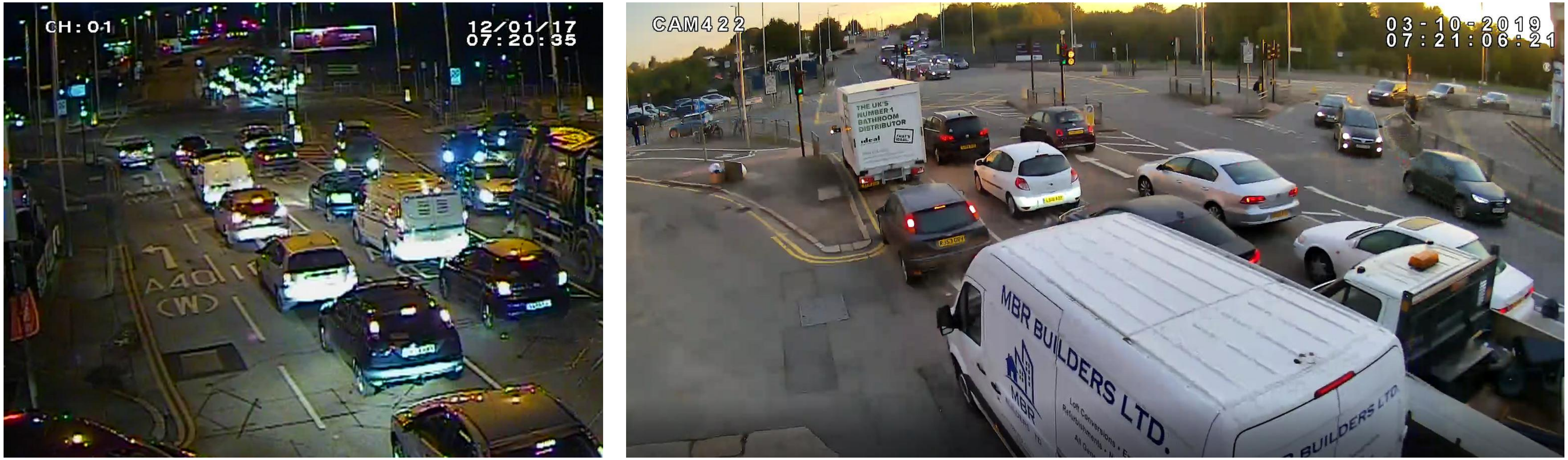
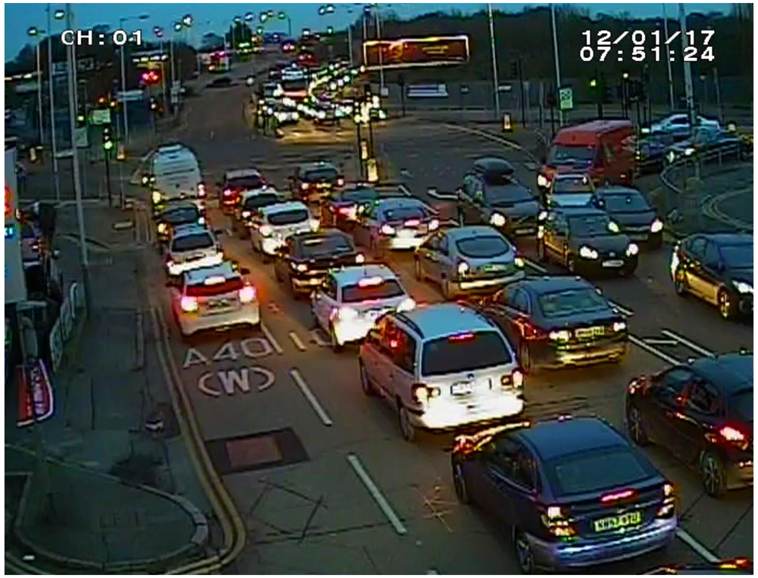


Figure 10: AM peak – Camera 2: 07:35 (2017 vs 2019)

Figure 11: AM peak – Camera 2: 07:50 (2017 vs 2019)



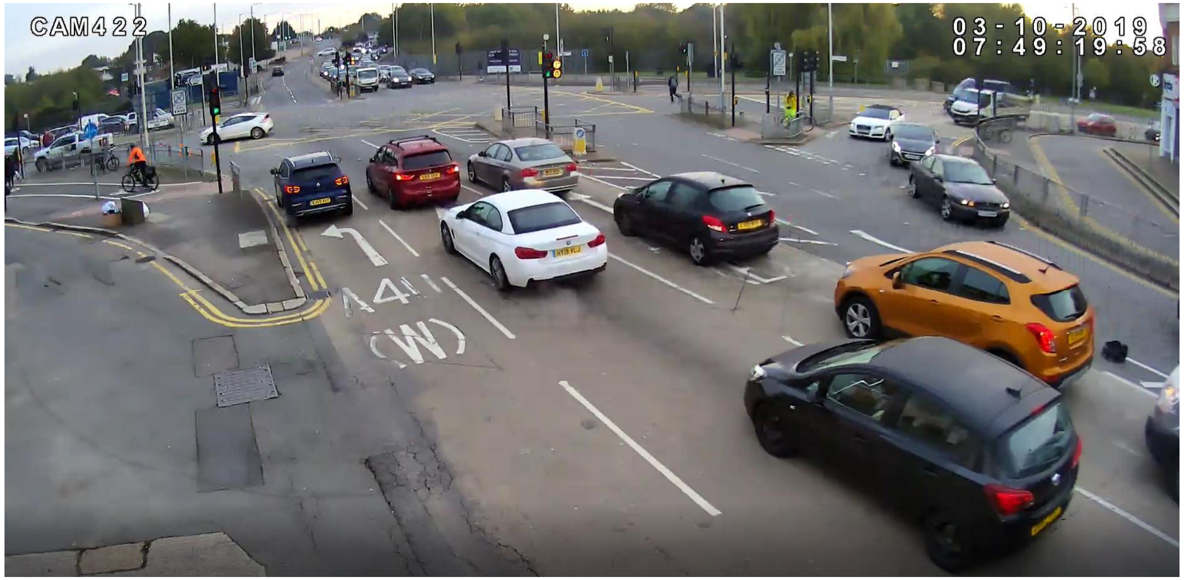


Figure 12: AM peak – Camera 2: 08:05 (2017 vs 2019)

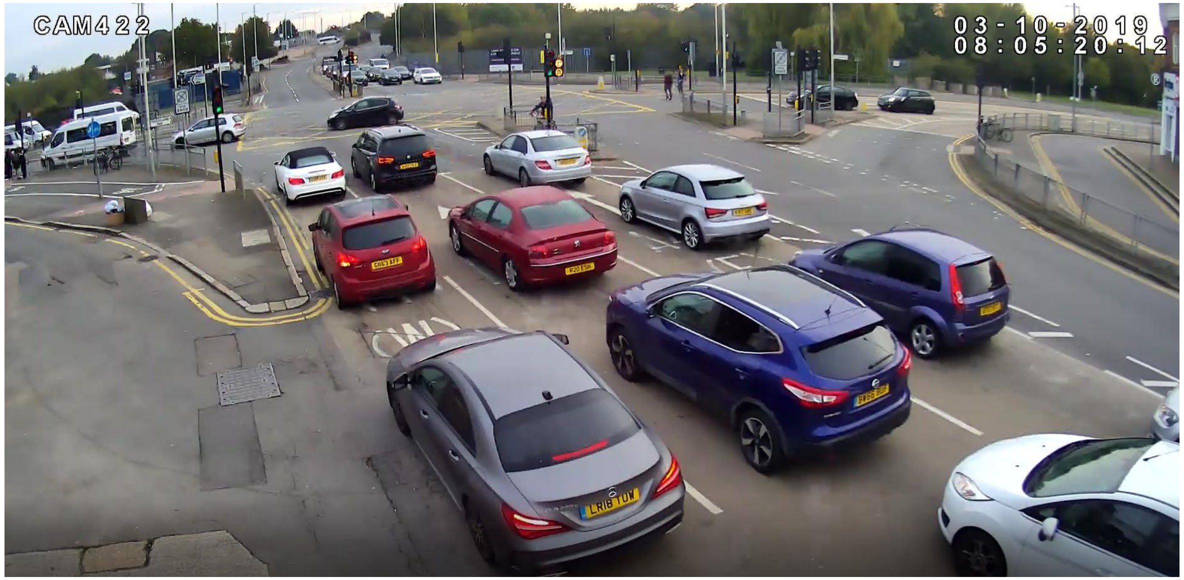


Figure 13: AM peak – Camera 2: 08:20 (2017 vs 2019)

The screenshots show that throughout the morning peak, there is extensive queuing on both Long Lane north and Long Lane south arms. The Long Lane south queue continues beyond the extent of the video footage in both 2017 and 2019. The Long Lane north queue also continues beyond the sightline at each interval in 2017, whilst in 2019 the queue is not as extensive at 07:35, 08:05 or 08:20.

It is visible from the video footage that in 2019 all traffic approaching from Freezeland Way generally clears the junction in one signal cycle, with this occurring at 07:20, 07:35, 07:50 and 08:20. In 2017 a slight bottleneck occurs at 07:20 and 07:50 at the exit of the junction towards Long Lane south, though this does not obstruct the junction.

It can also be seen that in 2017 vehicles are attempting to make manoeuvres across the carriageway at Long Lane south to avoid the right turn queues at Long Lane north.

PM peak – Camera 1

A comparison of the junction conditions in 2017 and 2019, at the moment the lights on the Western Avenue arm change to green, is shown at 15-minute intervals for the PM peak hour within **Figure 14**, **Figure 15**, **Figure 16**, **Figure 17** and **Figure 18**.

Figure 14: PM peak – Camera 1: 16:35 (2017 vs 2019)

Figure 15: PM peak – Camera 1: 16:50 (2017 vs 2019)

Figure 16: PM peak – Camera 1: 17:05 (2017 vs 2019)

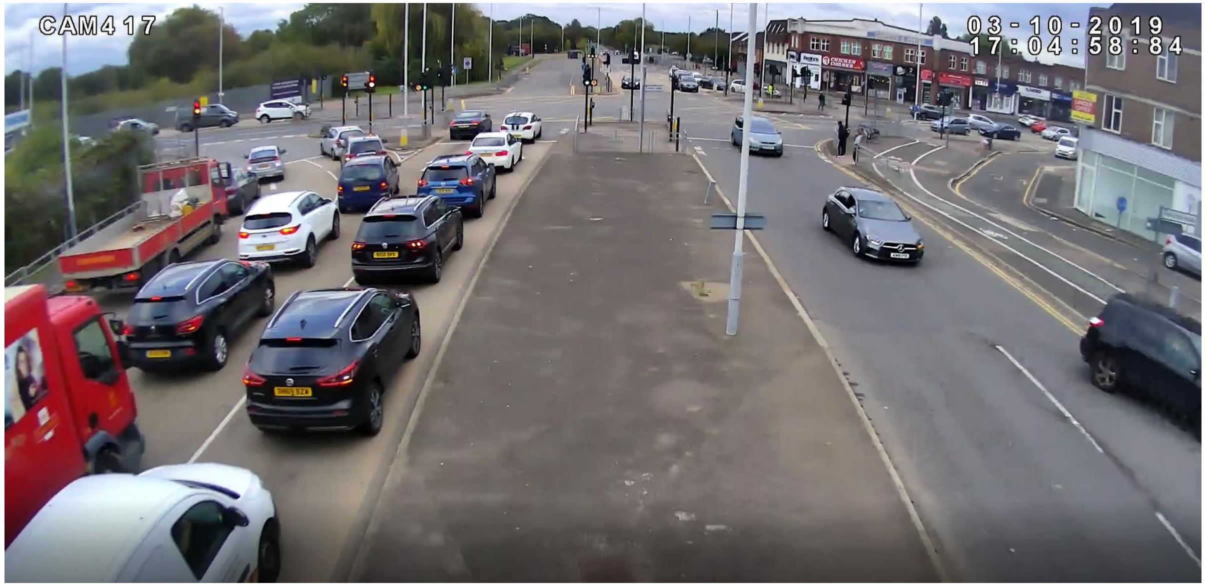
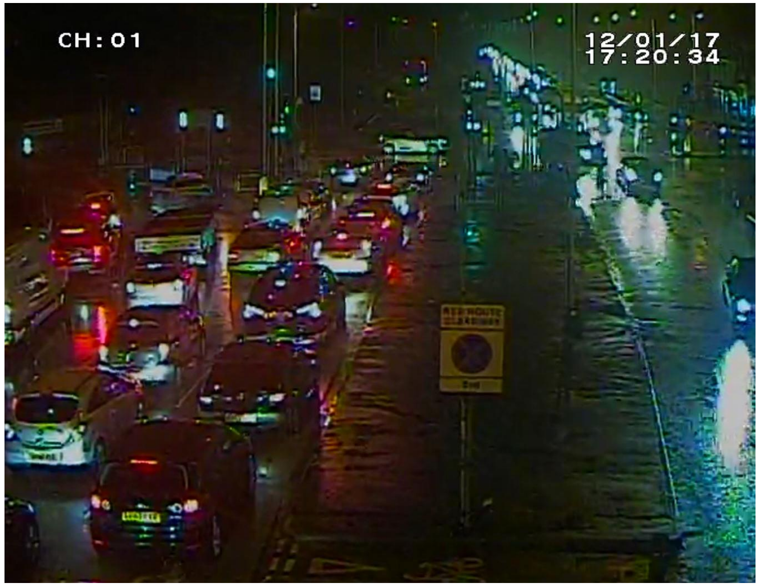


Figure 17: PM peak – Camera 1: 17:20 (2017 vs 2019)



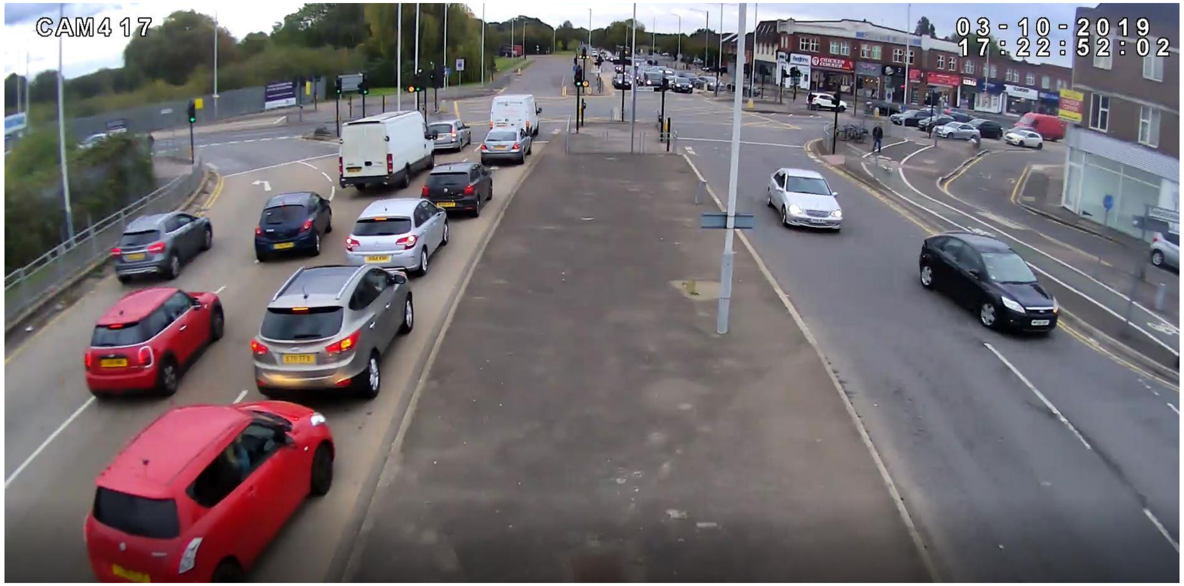
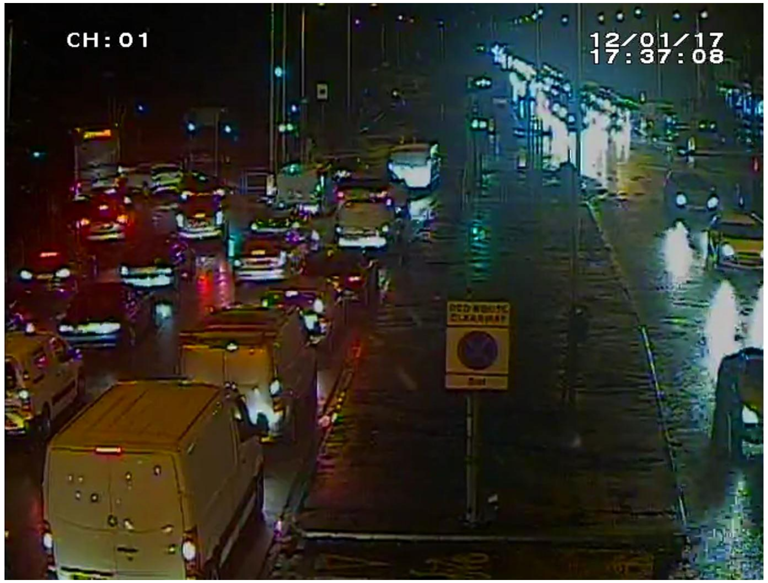
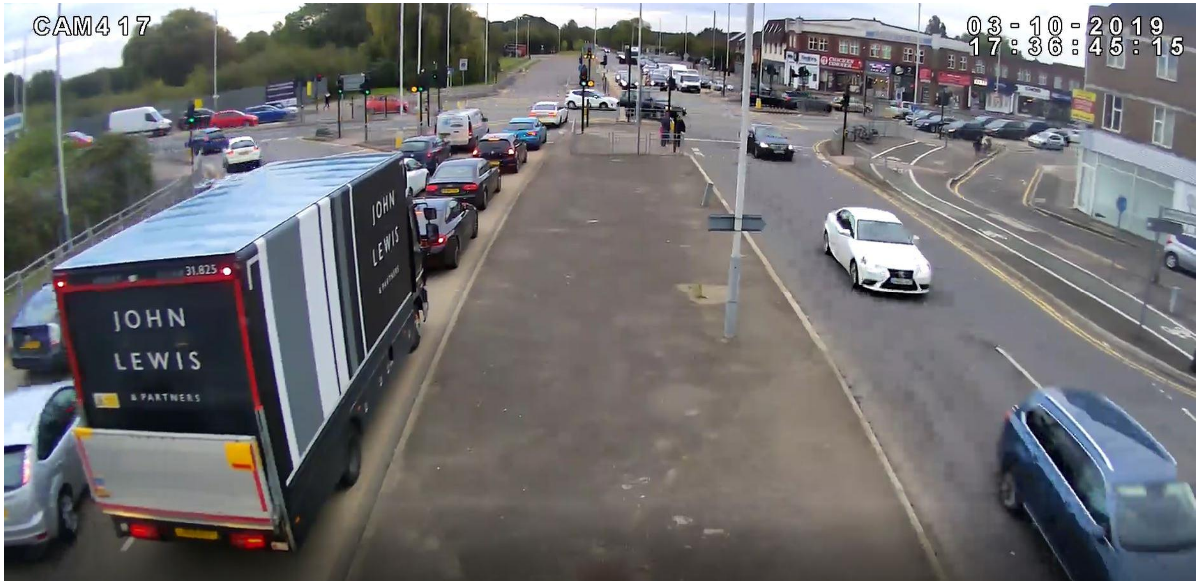


Figure 18: PM peak – Camera 1: 17:35 (2017 vs 2019)





The video footage shows that on Western Avenue the queue extends beyond the video extent at every time interval in 2017, though queueing to this extent did not occur at 16:35 or 17:20 in the 2019 videos.

Similar to what is revealed in the AM footage, the volume of traffic travelling westbound along Western Avenue captured on the video footage suggests that the junction is clearing more effectively in 2019, and it is clear from the 2017 footage that vehicles turning from Long Lane north onto Western Avenue are still passing through the yellow box as the Western Avenue signals turn green. In almost all cases, a higher number of vehicles is shown turning onto Western Avenue westbound in the 2017 video footage when compared with the 2019 footage.

In the case of Freezeland Way, the 2017 footage generally shows that cars are queueing back towards the east as far as the eye can see at all intervals. This is not the case in the 2019 footage, where the queue length on Freezeland Way is consistently significantly shorter. This is reflected in the ATC data, which suggests a reduction in traffic movements along Freezeland Way in 2019 when comparted with 2017.

PM peak – Camera 2

A comparison of the junction conditions in 2017 and 2019, at the moment the lights on the Long Lane south arm change to green, is shown at 15-minute intervals for the PM peak hour within **Figure 19**, **Figure 20**, **Figure 21**, **Figure 22** and **Figure 23**.

Figure 19: PM peak – Camera 2: 16:35 (2017 vs 2019)

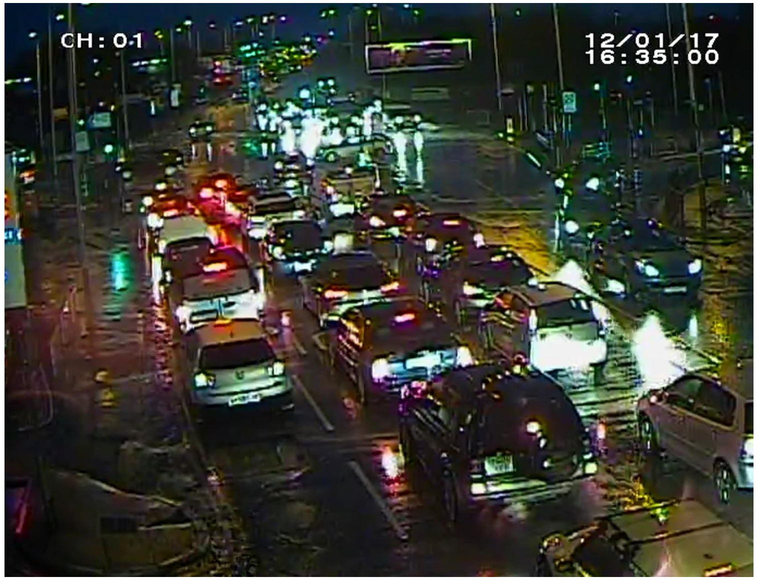


Figure 20: PM peak – Camera 2: 16:50 (2017 vs 2019)

Figure 21: PM peak – Camera 2: 17:05 (2017 vs 2019)

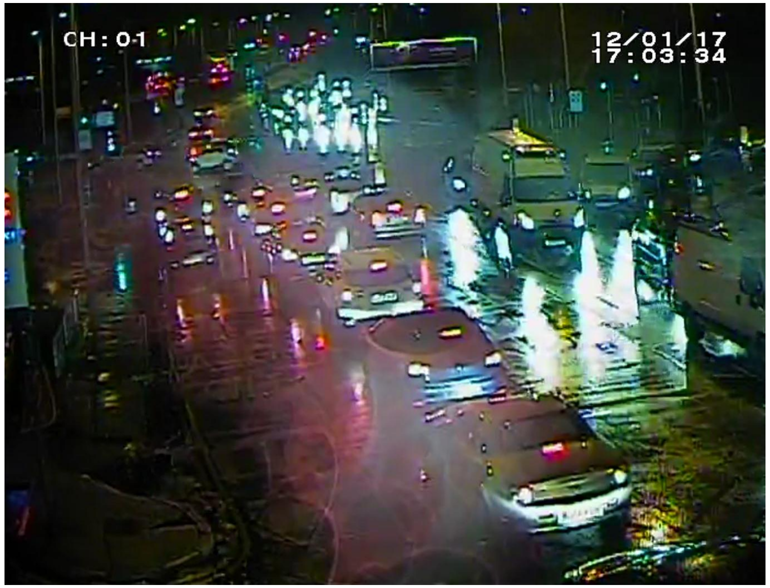


Figure 22: PM peak – Camera 2: 17:20 (2017 vs 2019)

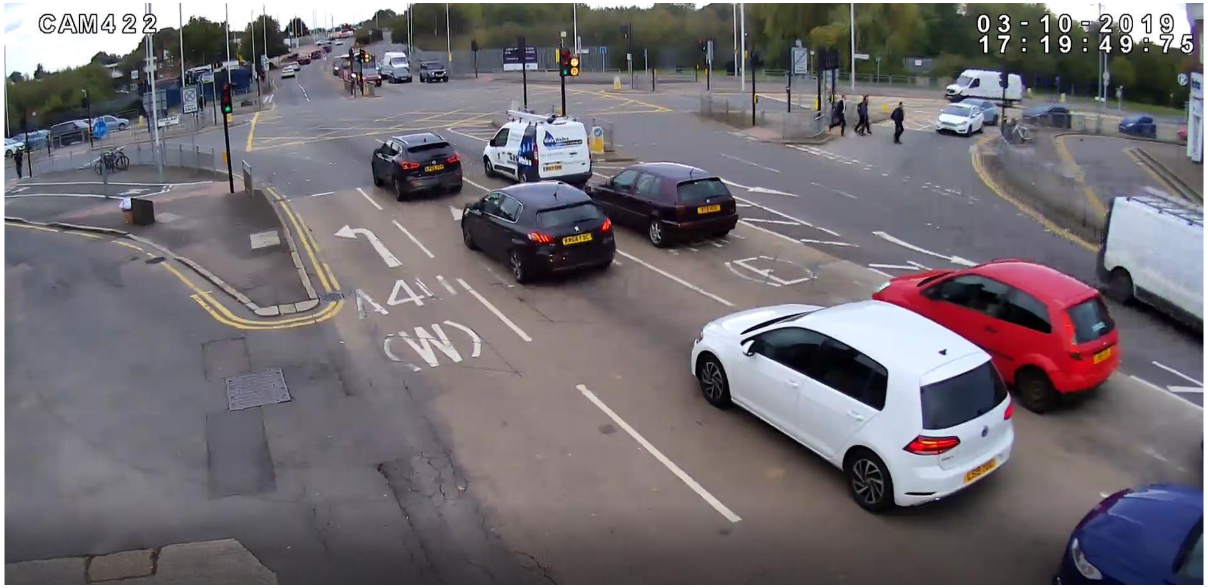


Figure 23: PM peak – Camera 2: 17:35 (2017 vs 2019)

The camera footage shows that queueing occurs beyond the video extent on both the north and south approaches to Hillingdon Circus during both the 2017 and 2019 surveys.

Footage from 2017 shows that vehicles turning right from Western Avenue to Long Lane south are frequently blocking traffic turning left from Freezeland Way into Long Lane south when the Long Lane south signals turn green (see 16:50, 17:05, 17:20 and 17:35 snapshots). This is due to congestion further south along Long Lane south that is causing traffic to block back to the Hillingdon Circus junction. In contrast, the 2019 footage shows that traffic on the Long Lane south exit from Hillingdon Circus has cleared by the time the signals on Long Lane South turn green and traffic turning left from Freezeland Way proceeds onto Long Lane south.

SUMMARY

This Transport Assessment Addendum outlines the findings of the ATC and video surveys conducted in September / October 2019 and compares them against identical surveys which were undertaken in January 2017 and formed the basis of the traffic impact assessment modelling work undertaken to support the re-development proposals on the Former Master Brewer Site.

As shown by the ATC results, the volume of traffic passing through Hillingdon Circus junction has reduced significantly across all relevant time periods. The recorded reduction in flows through the junction are as follows:

- AM peak hour **Reduction** of **610** vehicles (**11%**)
- AM 3-hour peak **Reduction** of **2,406** vehicles (**15%)**
- PM peak hour **Reduction** of **568** vehicles (**9%**)
- PM 3-hour peak **Reduction** of **2,422** vehicles (**13%**)
- Full day **Reduction** of **2,462** vehicles (**3%**)

Elsewhere, there has been a small increase in traffic flows recorded on Long Lane to the north of Swakeleys Drive (+6% during the AM peak hour, +7% during the PM peak hour and +4% across the entire day), but virtually no change in traffic flows on Long Lane at the junction with the A40 eastbound on-slip, which is closer to the development site. In addition, Hercies Road to the south of Western Avenue has seen a significant reduction in traffic flows during the AM peak period (c.-10%), and an insignificant increase in flows during the PM peak period (+1-3%).

Journey time data, obtained from Traffic Master, shows that vehicle journey times through Hillingdon Circus have typically reduced or remain virtually unchanged in both the AM and PM peak period. The recorded data shows that:

- Journey times recorded both northbound and southbound along Long Lane through Hillingdon Circus have decreased in the AM peak hour. A significant decrease in journey time is also experienced in both directions in the PM peak hour
- Journey times recorded eastbound through Hillingdon Circus have decreased significantly in the AM peak hour, with an increase in westbound traffic. A minimal increase has been experienced in both directions in the PM peak hour
- Journey times recorded in both directions between Hercies Road and Granville Road have decreased significantly in the AM peak hour. A significant decrease is also experienced northbound / westbound in the PM peak hour, with a minimal increase in the southbound / eastbound direction

The video footage also shows that traffic conditions at Hillingdon Circus have improved since the 2017 surveys were undertaken, as would be expected based on the ATC survey comparison. The camera footage reveals that:

- Queues on Freezeland Way appear significantly shorter in 2019 during the PM peak hour when compared with 2017
- Queues on Long Lane north appear shorter in 2019 during the AM peak hour when compared with 2017
- Queues blocking back to Hillingdon Circus on the Long Lane south exit arm of the junction shown in the 2017 survey are no longer present in the 2019 survey. This allows the left-turn flow from Freezeland Way onto Long Lane south to clear the junction more regularly in 2019 than in 2017
- In general, the observations support the ATC survey results, which show a clear reduction in overall traffic passing through the junction of around 10% during the AM and PM peak hours

In light of the above, it can be concluded that peak period (including peak hour) traffic conditions on the local road network around the Former Master Brewer Site in 2019 are generally better than they were in 2017, particularly at the Hillingdon Circus junction. Traffic flows recorded in 2019 were typically down on those recorded in 2017, and journey times recorded were also generally faster in 2019 than in 2017. Video footage taken during both surveys shows that conditions are either no worse in 2019 than they were in 2017, or have improved. As such, we do not consider that any updates to the 2017 and 2018 traffic impact assessment modelling work are required to support the current planning application for the development site, particularly given the reduction in car driver trip generation forecasts associated with the current scheme when compared with the previous Meyer Homes scheme. This conclusion has been agreed with Transport for London following a comprehensive review, and the conclusions of the Local Model Validation Report and Signal Optimisation Note (dated November 2017 and February 2018 respectively, and included as Appendices L and M of the 2019 Transport Assessment report) therefore remain valid.

Appendix A – 2017 Survey Scope

HILLINGDON TRAFFIC MODELLING SURVEYS

SURVEY SCOPE

CONFIDENTIAL

DECEMBER 2016

HILLINGDON TRAFFIC MODELLING SURVEYS

SURVEY SCOPE

Type of document (version)
Confidential

Date: December 2016

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QUALITY MANAGEMENT

ISSUE/REVISION	FIRST ISSUE	REVISION 1	REVISION 2	REVISION 3
Remarks				
Date	15/12/2016			
Prepared by	Anastasia Thomadaki			
Signature				
Checked by				
Signature				
Authorised by				
Signature				
Project number				
Report number				
File reference				

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TABLES

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FIGURES

MAPS

NO TABLE OF FIGURES ENTRIES FOUND.

APPENDICES

INTRODUCTION

REQUIREMENT

WSP | Parsons Brinckerhoff requires a fee proposal to for traffic surveys to be undertaken at junctions around Hillingdon. This document sets out the survey brief.

TRAFFIC SURVEY BRIEF

Traffic surveys are required in the following locations, as shown on Figure 1.

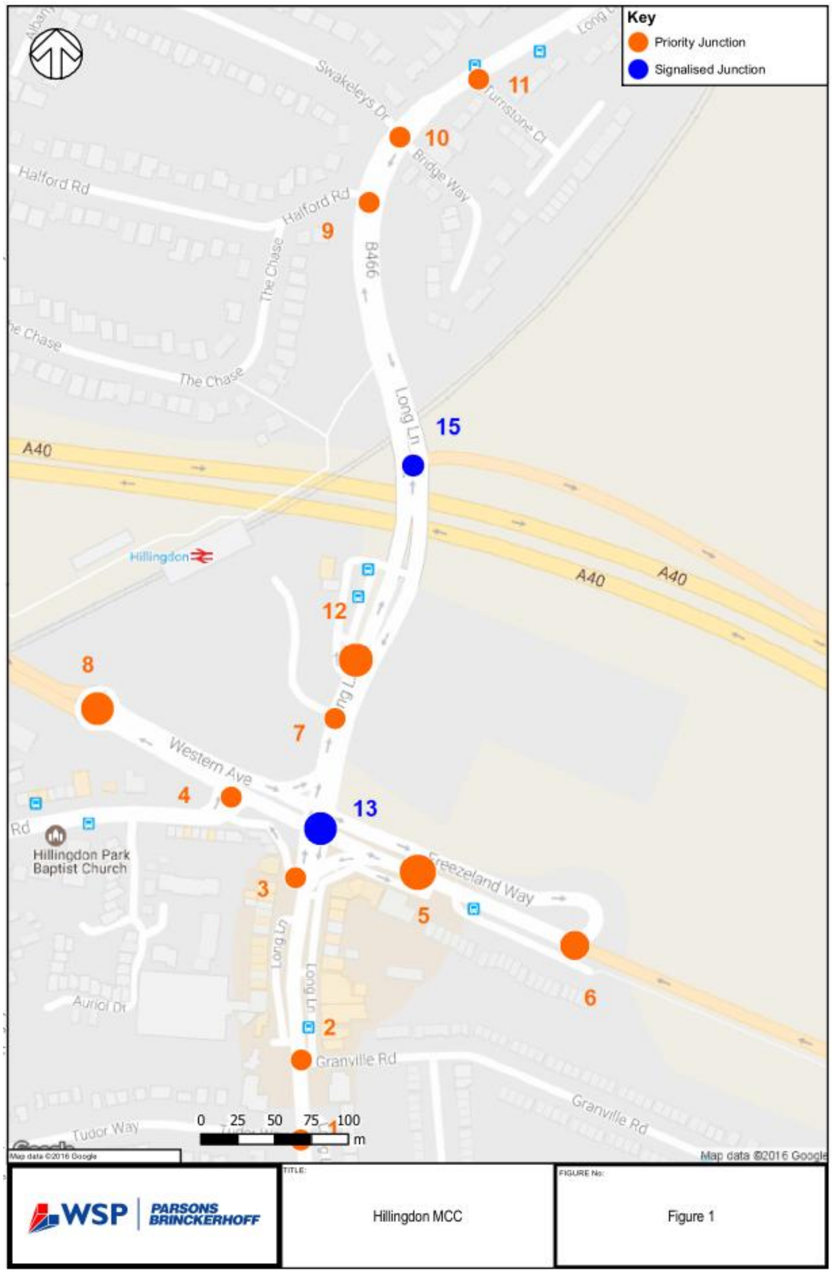
PRIORITY JUNCTIONS

1. A437 Long Lane/ Tudor Way;
2. A437 Long Lane/ Granville Road;
3. Shortcut Long Lane to Hercies Road;
4. Western Avenue/ Hercies Road;
5. Freezeland Way WB left turn to Long Lane (Londis parking) and Freezeland Way EB right turn;
6. Freezeland Way EB/ A40 off slip/ Freezeland Way WB;
7. A437 Long lane/ Hillingdon Station car park;
8. Western Avenue/ A40 on slip/ AA40 on slip roundabout;
9. B466 Long Lane/ Halford Road;
10. B466 Long Lane/ Bridge Way/ Swakeleys Drive;
11. B466 Long Lane/ Turnstone Close;
12. A437 Long Lane two access points to The Swallow Public House.

At these junctions, the following survey types are required:

- Classified turning counts; and
- Queue lengths.

Figure 1 – Traffic Count Locations



SIGNAL CONTROLLED JUNCTIONS

13. Long Lane/ Ryefield Avenue/ Sweetcroft Lane;

14. Long lane/ Freezeland Way/ Western Avenue;

15. B466 Long Lane/ A40 on slip/ A437 Long Lane.

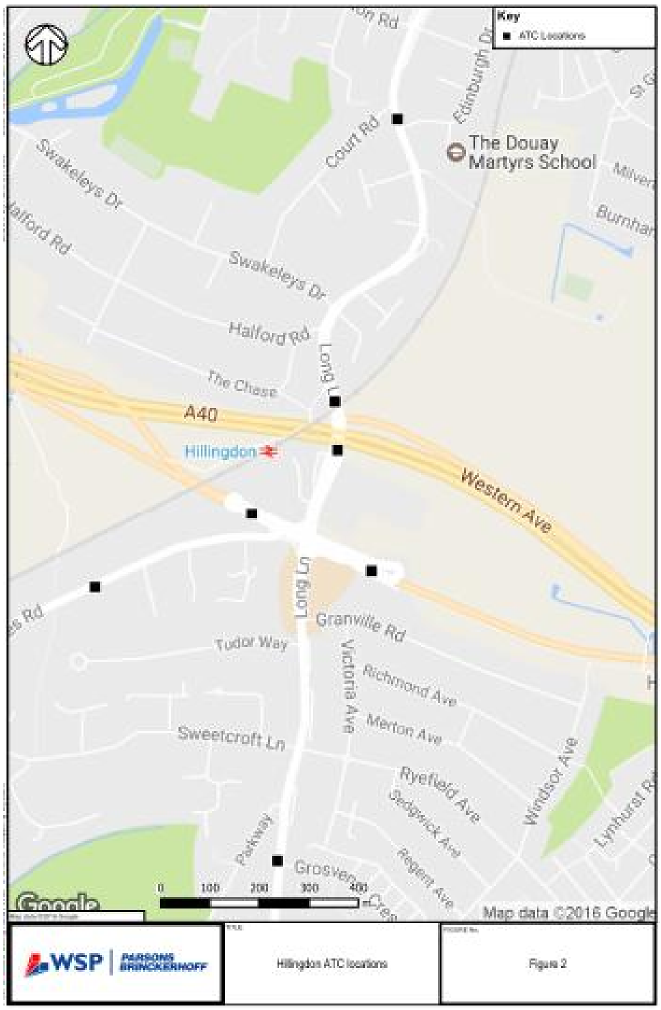
At the signal controlled junctions, the following surveys are required:

- Classified turning counts;
- Queue lengths;
- Saturation Flow and
- Degree of Saturation.

ATC SURVEY

WSP | Parsons Brinckerhoff require the completion of a single 2 week (14 day) ATC count to be completed at the location listed in Figure 2 below. The conditions of the ATC and our vehicle requirements are listed in Appendix A-1.

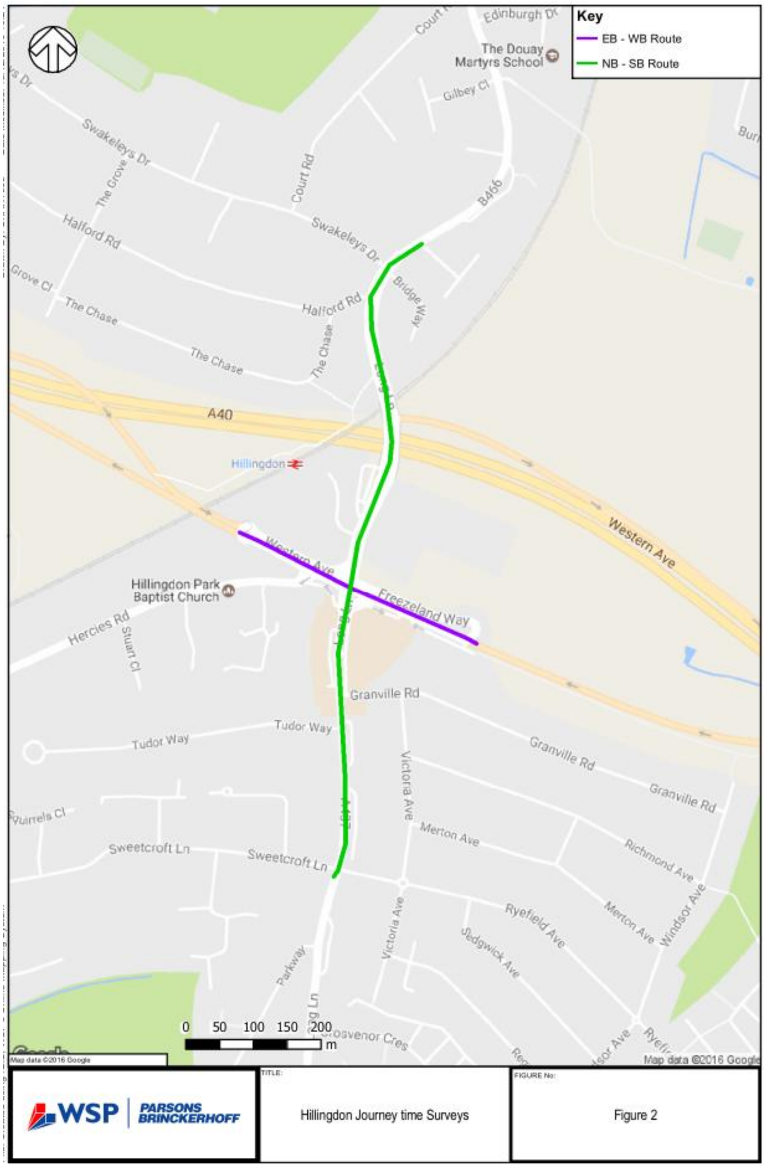
Figure 2 – ATC Locations



JOURNEY TIME ROUTES

Please could the survey company also price separately for journey time surveys covering the following routes as outlined in Figure 3. Each route represents two directions. We could require the journey times with interval to main junction points for each 15min period.

Figure 3 – Journey Time Survey Requirements



SPECIFICATION

The specification of the surveys is described below:

TIME PERIODS

The survey periods are the AM, PM peak of a neutral weekday (Tuesday- Thursday excluding school holidays) and weekend peak (Saturday). The AM and PM survey periods should cover 3 hours (07:00-10:00) and the Saturday should cover 4 hours (10:30-14:30) with spreadsheet analysis of the peak 3 hours for all periods.

We require the video surveys of the junctions shown in the above Figures for the neutral day and Saturday. The pricing should include the footage provided on a hard drive.

The neutral day AM weekday, PM weekday and weekend peaks are to be tabulated and provided in spreadsheet form covering all information required as part of the surveys requested above (unless stated below).

ATC information to be provided for two full weeks (7 days) and to be classified as outlined in Appendix A-1.

MANUAL CLASSIFIED COUNTS

The counts should be classified in the following categories:

- Pedal cycle;
- Motor cycle;
- Car;
- LGV;
- OGV1;
- OGV2; and
- PSV.

The turning count data needs to be collected across the complete 3 hour AM and PM Peak and 4 hour weekend peak periods with the data being broken down into fifteen minute time periods with the analysis covering two hours for each period.

When collected using video, the survey videos must be provided on hard disk drive.

QUEUE SURVEYS

The queue surveys need to be undertaken across the three peak hours of each peak period. Please note that the queuing data needs to be collected in line with the WSP|PB Standard Survey Specifications and Definitions (paragraph 2.5b for signal junctions and paragraph 2.5d for priority controlled junctions) which is attached as ***Appendix A-1***. Signalised junction queue lengths need to be measured at the start of the each green illumination.

JOURNEY TIMES

Journey time surveys are required to be carried out along in both directions with timing points to main junction. Timing points should be taken at the point at which the vehicle crosses the stop line in the case of traffic signals or the point at which the vehicle crossed the centreline of the side road. At the southern end of the proposed route vehicles can turn around using the gyratory at Sloane Square; the survey company should agree a proposed turn around methodology for vehicles at the northern end of the route which must then be used by all vehicles to ensure consistency of results.

The journey time surveys must be carried out by car, with the survey incorporating both GPS data collection and in-car video. Both the video collected and the GPS data collected must be provided to WSP when providing the survey data. The survey timings must be taken either during the duration of the survey or taken from the video survey.

The journey time surveys are required for the following periods:

- AM Peak: 07:10 to 10:00;
- PM Peak: 16:00 to 19:00; and
- Saturday Peak: 11:00 to 14:00.

A minimum of 10 journey time surveys must be completed for the central hour period in each case, in each direction, with surveys spread throughout the period.

Journey time surveys should be carried out in accordance with section 2.8 of the WSP Standard Survey Specifications.

SATURATION FLOWS / DEGREE OF SATURATION AND BLOCKING BACK MEASUREMENTS

The saturation flows and degree of saturation readings need to be undertaken in line with the 'TfL Traffic Modelling Guidelines Best Practice which is contained as ***Appendix A-2***, (information is contained and Section 2.4.7 on page 70 and 2.4.8 on Page 72).

The information required to complete a single Saturation Flow and Degree of Saturation recording is as follows.

1. The queue at the start of green.
2. Treat the start of saturation as when the second vehicle (2s) in the queue passes the stopline. Timing should be started at this point.
3. Time at the end of the saturated period in seconds.
4. Number of PCU's that pass across the stopline during the saturated period (between points 2 and 3).
5. Time at end of amber in seconds.
6. Number of extra PCU's that cross the stopline between the end of saturation and end of amber.

Mock spreadsheets to calculate DoS and Saturation flow are contained within ***Appendix A-3***. Please use this sheet for each lane at each junction onsite when calculating these measurements. Once the spreadsheet is filled in correctly and processed to the electronic version the formula included will complete the required calculation. Please ensure each sheet is named and referenced explicitly to the approach and arm it represents.

There is likely to be situations where following the TfL guidelines will not be able to provide Saturation Flow and DoS readings. For example, there may be instances where traffic stages run for a maximum of 15 seconds (TfL suggest saturated periods of 12s, unlikely in this instance) or queues under 7 PCU's.

In these instances some data is regarded as better than no data. On these occasions please provide readings with lower saturated conditions (lower levels of saturation than those outlined as a guide by TfL. On these occasions we would like to receive data where traffic saturation length is 7 seconds or above.

The data needs to be collected for the AM and PM peaks for every lane on every approach where there is a stop line. It should be noted that at least 10 useable / consistent saturation flows and Degree of Saturation measurements need to be recorded in each peak hour for each lane of each approach.

This traffic situation in London is that of in parts, an extremely congested network with at times large amounts of queuing. If saturated traffic is at a green signal head illumination, moving slowly across the stop line or is sat stationary at the stop-line, blocking back from a downstream junction is occurring.

Therefore a blocking back survey will be required in order to determine the amount of lost available green time occurs. This will be an important figure for us to ensure we are creating a close to reality existing condition through our modelling.

In terms of the blocking back, this needs to be collected in line with the Technical Note contained as ***Appendix A-4*** and the survey sheets contained within ***Appendix A-5***. This data needs to be collected for all stoplines at all junctions across the AM, Inter and the PM peak periods.

REQUIRED DELIVERABLES

The survey results should be recorded in accordance with paragraph 3 of the WSP Standard Survey Specification. All surveys should be conducted using CCTV data and copies of the survey videos should be provided on hard disk drive. We request all survey data to be provided back to WSP Parsons Brinkerhoff 10 working days after completion of the surveys.

Appendix A

APPENDIX A-1

WSP STANDARD SURVEY SPECIFICATION AND DEFINITIONS

WSP: Standard Survey Specification and Definitions

This document sets out the standard survey specification for common traffic surveys commissioned by WSP. It should be read in conjunction with the WSP Project Survey Brief which sets out the specific requirements for any given survey including time periods and locations.

1. General Requirements

The surveys are to be undertaken on the dates specified in the WSP Project Survey Brief, or if unspecified, on a neutral weekday (Tuesday to Thursday) and outside school holiday periods, and Bank Holiday weeks unless otherwise advised.

Surveys should not be conducted in the event of major road works or a rail/bus strike or any other major incident which would serve to affect traffic conditions.

In the event that abnormal traffic conditions are generated by incidents such as ad-hoc road works, local traffic diversions, accidents or adverse weather conditions, WSP should be immediately informed to evaluate whether the traffic survey should continue.

During static surveys, the contractor's vehicles should not be parked in the carriageway, thus affecting traffic conditions.

If the survey company is not able to undertake all specified surveys, please indicate which surveys could feasibly be undertaken and when the remaining surveys can be undertaken.

Delivery of results on time is critical to our ability to meet key programme dates. Where a delivery date is specified and for any reason the delivery of all results 'completed' and checked is not possible, please inform WSP at the time of quotation and at any time after commencement of the surveys.

2. Analysis Requirements

2.1 Vehicle Categories

All vehicle classes specified should be counted according to the vehicle categories defined in *Chapter 8 of* the *COBA Manual, May 2002* as shown by the extract on page 2 of this document.

Where necessary, additional vehicle types such as taxis/black cabs, motorcycles and pedal cycles may need to be identified by the survey. If these additional categories are required, they will be specified in the WSP Project Survey Brief.

2.2 Passenger Car Units (PCU)

If a traffic count is requested in passenger car units (PCUs), the following values should be used by the survey company to convert the classified vehicle count data:

Type of Vehicle	PCU Value
Car/LGV/Taxis	1.0
OGV1	1.5
OGV2	2.3
Buses/Coaches	2.0
Motorcycles	0.4
Pedal Cycles	0.2

Source: Part 3 of Traffic Advisory Leaflet 1/06, General Principles of Traffic Control by Light Signals

Extract from COBA Manual:

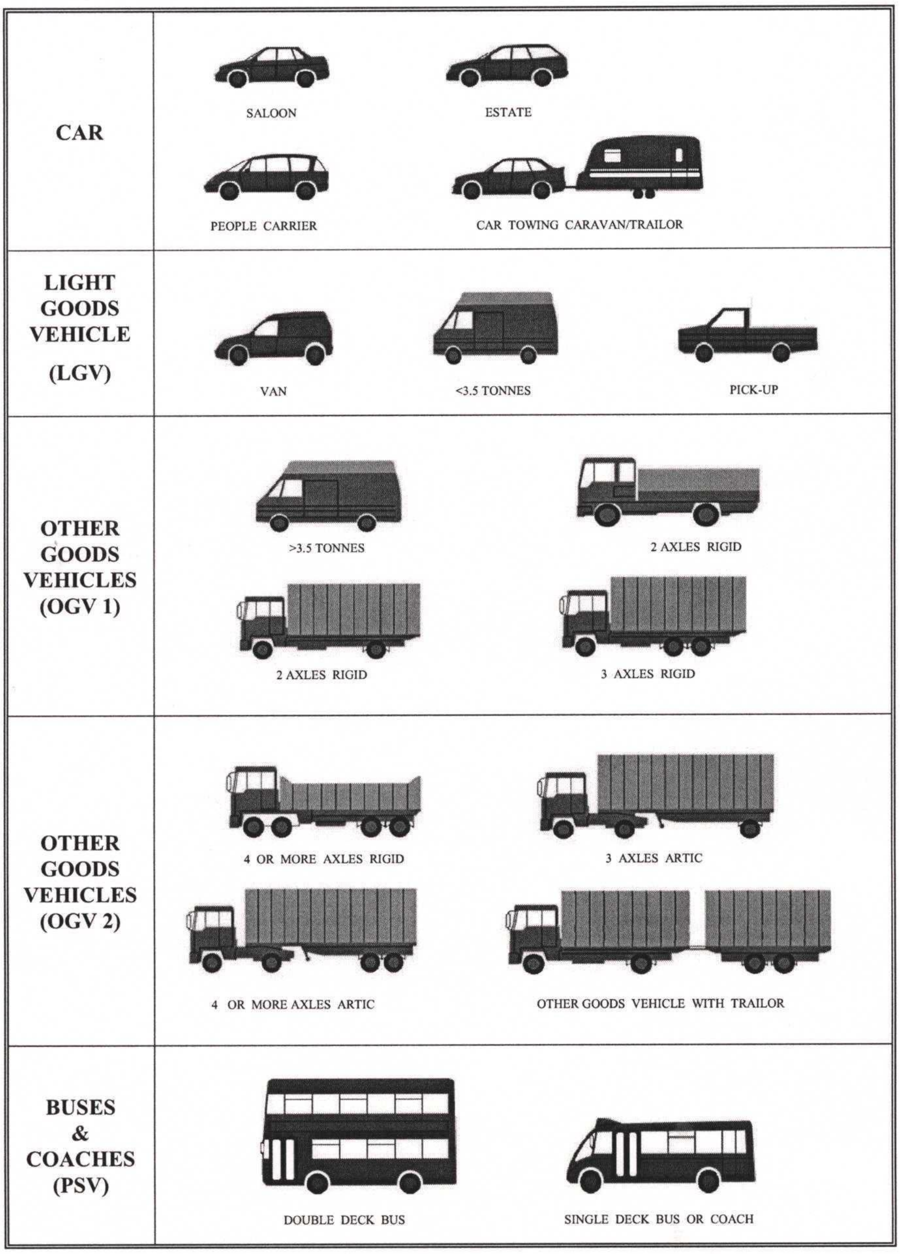


Figure 8/1: COBA Vehicle Categories

2.3 Traffic Counts

a) Simplified Count

- Counts are to be categorised in two classes:

    i. Cars/LGV
    ii. OGV1/OGV2/PSV

- Data to be captured at 15 minute intervals with hourly totals
- Data to be tabulated by movement, class and time

b) Fully Classified Count

- Counts are to be fully classified in seven classes:

    i. Pedal cycle
    ii. Motor cycle
    iii. Car
    iv. LGV
    v. OGV1
    vi. OGV2
    vii. PSV

- Data to be captured at 15 minute intervals with hourly totals
- Data to be tabulated by movement, class and time

c) London TfL DTO Compliant Vehicle Count

- Counts are to be fully classified in nine classes:

    i. Pedal cycle
    ii. Motor cycle
    iii. Car
    iv. Taxi
    v. LGV
    vi. OGV1
    vii. OGV2
    viii. PSV
    ix. Articulated bus
    x. Trams (where relevant)

- Data to be captured at 15 minute intervals with hourly totals and presented as PCUs per hour
- Data to be tabulated by movement, PCU value and time

d) Pedestrian Counts

- Data to be captured at 5 minute intervals with hourly totals by direction
- Results to be tabulated by movement and time

2.4 Automatic Traffic Counters (ATC)

- ATC tubes should not be installed at locations:

  ⇒ where vehicles are parked;
  ⇒ queuing or right turning vehicles may wait in order to execute a turn; or
  ⇒ where vehicles may cross the tubes at an angle

- Appropriate measures are to be taken to ensure that the tube is protected and does not present a danger to pedestrians on the footway or other road users
- Tubes are to be monitored on at least every four days to ensure that they are operational and remain firmly anchored
- Vehicle should classified by type and axle length
- If speeds are requested, include 85^{th} percentile speeds in results
- Data to be summarised in 15 minute intervals

2.5 Queue Length Surveys

a) Simplified Queue Length Survey

- Measurement should be taken up to the last stationery vehicle in the queue
- Each lane of each arm of the junction should be measured where a stop line is present
- For signalised junctions, measurements should be taken just before the traffic signals show a green light
- For non signalised junctions, the longest queue should be recorded within each 5 minute interval
- Results to be tabulated by road name, lane and time
- Notes should be provided on queues developing due to circumstances other than just capacity of junction being surveyed, e.g. crossings on exit, bus stops, queuing back through the junction from junctions/events downstream.

b) Signalised Junctions *(as specified by Transport for London Surface Transport DTO Modelling Guidelines Version 2.0)*

- Total queue lengths to be recorded at the start of the green light
- Data to be captured in PCUs (see section 2.2)
- Measurement should be taken up to the last stationary vehicle in the queue
- Each lane of each arm of the junction should be measured where a stop line is present
- A note should be made where queues are blocking back to the next signalised junction
- Data to be captured at minimum of 15 intervals however 5 minute intervals are preferable
- Results to be tabulated by road name, lane and time
- Note impact of events downstream affecting surveyed junction
- Note length of queue not clearing in the green time

c) Mean Maximum Queue Lengths *(for TRANSYT as specified by Transport for London Surface Transport DTO Modelling Guidelines Version 2.0)*

- The mean maximum queue is the distance from the stop line of the last stationary vehicle before it moves off after vehicles in front of it start to move on a green signal
- Data to be captured in PCUs (see section 2.2)
- Measurement should be taken up to the last stationery vehicle in the queue
- Each lane of each arm of the junction should be measured where a stop line is present
- Data to be captured at minimum of 15 intervals however 5 minute intervals are preferable
- Calculation should be based on an average of at least 10 cycles within the survey period
- Results to be tabulated by road name, lane and time

d) Non-signalised Junctions *(as specified by Transport for London Surface Transport DTO Modelling Guidelines Version 2.0)*

- Maximum queue length to be recorded within specified interval
- Data to be captured in PCUs (see section 2.2)
- Measurement should be taken up to the last stationery vehicle in the queue
- Each lane of each arm of the junction should be measured where a stop line is present
- A note should be made where queues are blocking back to the next junction
- Data to be captured at minimum of 15 intervals however 5 minute intervals are preferable
- Results to be tabulated by road name, lane and time

2.6 Saturation Flows *(as specified by Transport for London Surface Transport DTO Modelling Guidelines Version 2.0)*

- Saturation flows should only be measured if there is sufficient demand for an accurate assessment; as a minimum there should be a continuous flow of traffic across a stop line for 12 seconds from the start of the green phase. Recordings should therefore be taken in the most saturated hour of the survey period (i.e. period with highest traffic flow). If it is not possible to measure the saturation flow then a note should be made that there is not enough demand on the link for an effective reading to be surveyed
- Saturation flow measurements should be undertaken by competent individuals preferably with previous experience of recording this type of data
- If the approach is fully saturated, the recording should commence from the first vehicle crossing the stop line and end when the red signal is first displayed
- If the approach is not fully saturated, the saturated discharge may finish during the green stage therefore recording should end at the first gap in the flow of traffic across the stop line
- For each cycle measured, the following signal timings need to be measured:

  ⇒ Total green time; and
  ⇒ Total effective green time (time during which traffic signal shows a green light and traffic is discharging across the stop line)

- At least 10 cycles should be recorded of which approximately 5 should be fully saturated for a good average value of the saturation flow and start and end lost time (i.e. total green time – effective green time)
- Measurement to be taken in PCUs (see section 2.2)

- The formula for calculating saturation flow for one hour is:

  ⇒ (Total PCU traffic in saturated period / Total effective green time in saturated period) x 3600

- Results for each individual cycle to indicate total PCU traffic and effective green time with a calculation of the saturation flow based on the total values for all recordings taken

2.7 Degree of Saturation *(Transport for London Surface Transport DTO Modelling Guidelines Version 2.0)*

- Average of at least 10 cycles to be taken at the same time that saturation flows are measured

- To measure the actual degree of saturation on site, the average green time and cycle length must first be measured together with a spot count of the traffic flow. The actual degree of saturation is then calculated as:

$$\text{Percent sat.} = \left(\frac{q * C}{G_e * S}\right) \times 100\%$$

Key

q = spot count of traffic flow (PCU/hour)
C = average cycle length (measured in seconds = red time+amber time+green time)
G_e = average effective green ([actual green+leaving amber] - start and end lost time)
S = measured saturation flow (PCU/hour)

2.8 Journey Times (Bus or Car)

- A list of proposed timing points and locations must be provided and agreed with WSP before carrying out work on site

- Start and end points must be located beyond the start and end points of the identified route

- Journey time measurement to be taken at every signalised or non signalised stop line and *(for buses) at* arrival and departure from every bus stop, and at the beginning and end of bus lanes

- Cruise speeds and delays for buses/cars should be calculated from this data

- Delays caused at a specific timing point e.g. waiting for a traffic light to change, should be recorded as 'feature delays'

- Delays between timing points should be noted separately e.g. a bus being unable to leave a bus stop due to a parked vehicle or queuing vehicles, should be included as 'other delays' for the next timing point

- Journey time data should be of a minimum of one days duration with a total of at least 10 two-way runs for each of the time periods specified in the WSP Project Survey Brief. If this figure is not achievable, due to lack of buses or length of journey time then the maximum number of runs possible should be obtained

- Each run should be tabulated separately

- A summary should be provided for the average, maximum, minimum and standard deviation of the run times, feature delays and other delays between the various timing points

2.9 Car Park (Occupancy)

- Total vehicle entry and exit movements to be captured in 15 minute intervals with hourly totals
- Verification of number of parking spaces by type and location
- Count number of vehicles parked at the start and end of the survey.
- Accumulation profile to be provided
- Results to be tabulated by time and movement

2.10 Car Park (Duration of Stay)

- Vehicle registration number plate of entry and exit movements to be recorded in real time
- Vehicle registration number plate of vehicles parked at the start and end of the survey to be recorded
- Verification of number of parking spaces by type
- Results to be tabulated by movement, time and vehicle registration plate

2.11 Parking Beats

- Street inventory marking all parking bays (by type) and road markings with an associated key should be provided in electronic format
- Each vehicle parked in the specified area should be marked on the plan by a cross for each beat and supplied in electronic format
- Results should be tabulated by number of vehicles parked by time of beat, street name and parking restriction

2.12 Interviews

- WSP will provide a questionnaire for use in face to face interviews
- Each interview should be assigned an individual number
- Results to be tabulated by interview number and question
- Logic and consistency checks should be undertaken to ensure accuracy of data is maintained including validation of postcodes

2.13 Servicing

The following information should be recorded for all servicing vehicles:

- Arrival and departure time
- Vehicle registration
- Vehicle classification
- Building serviced
- Purpose of stop e.g. delivery, pick-up etc
- Duration of stay

2.14 Speed Surveys

- Speed surveys should be undertaken in accordance with TA 22/81 Vehicle Speed Measurement on All Purpose Roads which can be found on the internet at: http://www.standardsforhighways.co.uk/dmrb/vol5/section1/ta2281.pdf

- These surveys can be undertaken either manually using a radar speed meter or preferably by ATC (see section 2.4)

- It is crucial that the weather conditions during the survey are recorded particularly if conditions are wet as this will impact on the interpretation and application of the results

- Results to be tabulated by class of vehicle, speed and time for each direction/location observed

3. Survey Results Report Format / Deliverables

Results to be formatted as follows:

- Data tabulated in Excel unless otherwise specified
- 24 hour time format to be used for all surveys
- Plans clearly indicating what has been measured on site should be provided
- Weather conditions and any incidents or accidents which may affect the results should be detailed
- Electronic format by email unless otherwise specified

APPENDIX A-2

TFL MODELLING BEST PRACTICE GUIDELINES

recorded (in seconds) during site observations for each peak period being modelled. It is recommended that ten readings are taken on-site to obtain a mean average.

2.4.7 Saturation Flow

Saturation flow represents a key measurement of on-street performance and thus the values used within a model must accurately reflect the built environment.

Saturation flow, measured in PCU/hr, can be defined as:

> *"…the maximum flow, expressed in passenger car units (sic), that can be discharged from a traffic lane when there is a continuous green indication and a continuous queue on the approach."* [39]

Saturation flow is an expression of the maximum capacity of a link as predominantly determined by junction characteristics (geometry, layout, turning radii, visibility etc). The saturation flow input for a model should generally not be altered between models or modelled periods unless physical characteristics are modified, such as changes within a proposed model. Saturation flows should only be altered for each time period where a lane shares more than one turning movement, and site observations have noted that flow patterns vary significantly across the day. Saturation flows are normally required for each individual lane that is modelled, although multiple lanes can be combined into a single measurement if they perform identically in terms of flow, vehicle destination and queue behaviour.

Where fully saturated traffic appears to discharge at a rate less than the saturation flow (e.g. due to driver behaviour or exit-blocking), this should not be accounted for by changing the saturation flow in a model. Instead, it is recommended that Underutilised Green Time (UGT) is used to quantify this behaviour, as explained in section B2.4.8.1.

It is important that saturation flows are measured accurately. Incorrect saturation flows represent a common source of error which can cause delay during model auditing. It is recommended that a minimum of ten typical readings are taken to obtain a mean average, and that the minimum length of each measurement should be 12 seconds[40].

Measurements should be conducted using vehicles discharging across the stopline in free-flow and thus unaffected by downstream interference such as congestion or exit-blocking. Conditions need to be sufficiently busy that the link is saturated for an adequate period to allow measurement. The surveyor should be able to recognise the end of saturated conditions during each cycle. In some cases, due to insufficient flow or short green periods, it will not be possible to measure a minimum of 12 seconds of saturated conditions at any time of day. In these circumstances shorter measurements can still be recorded but should be identified in accompanying reports for the TD NP MAE, and their validity should be scrutinised by the CE.

39 Salter R J & Hounsell N B, *Highway Traffic Analysis and Design*, 3rd Ed, Macmillan, 1996, p292.

40 Binning J, *Traffic Software News*, TRL, September 2007, No. 43, p2.

Saturation flow measurements should not include periods of 'lost time' at the start and end of green, as these represent time during which vehicles are accelerating or decelerating and therefore not moving at saturation flow. 'Lost time' parameters can be calculated, but it is unlikely exact values will be known unless recorded using a dedicated survey, it is therefore acceptable to use a default of two seconds start lost time and no end lost time. A common technique to account for start lost time is to ignore the first two vehicles to cross a stopline before recording saturation flow measurements. This prevents accelerating vehicles being counted towards measurements and therefore underestimation of the saturation flow.

Situations may occur where satisfactory saturation flow measurement is not possible, for example due to insufficient traffic flows, green time or queuing. These should be assessed on a case by case basis, and identified along with an explanation on the method used to estimate saturation flows. An example method for estimating saturation flow using RR67 is explained in B2.4.7.1.

2.4.7.1 Use of Calculation Formula RR67

The prediction of saturation flows using a standard formula was outlined in TRL Research Report 67 (RR67) by Kimber *et al* through the classification of empirical data surveyed over twenty years ago at various UK sites[41]. RR67 allows the estimation of saturation flows based on geometric data such as vehicle turning radii, lane width and road gradient. Data used in the development of RR67 was restricted to sites which were classified as 'good' or 'average' in terms of junction performance by Webster and Cobbe [42]. Given the numerous sources of interference for traffic in London, such as heavy pedestrian movements, poor visibility and parked vehicles, many junctions would not meet either of these classifications and thus use of the RR67 formula can result in the over prediction of saturation flow at signalised junctions within London.

The use of RR67 can remove the need to measure all saturated lane groups within a network (i.e. non-critical approaches). Similarly saturation flow estimates can be derived from RR67 and applied where site measurement is not possible for reasons as discussed in B2.4.7.

However, where RR67 is applied it is necessary to verify the applicability of the estimated value against measured data. A factor should be calculated that accounts for local junction characteristics as compared to the 'typical' junction inherently described by RR67. This factor should be generated by comparing the RR67 predicted saturation flow against measured values from a lane group with similar physical or lane usage characteristics. This adjustment factor should be applied to predicted values on approaches where measurement was not possible or practical.

RR67 adjusted saturation flows should be highlighted in accompanying reports for the TD NP MAE and audited by the CE during model calibration.

41 Kimber R M, Macdonald M & Hounsell N B, *The Prediction of Saturation Flows for Road Junctions Controlled by Traffic Signals*, Transport and Road Research Laboratory, Department of Transport, Research Report 67, 1986.

42 Webster F V & Cobbe B M, *Traffic Signals*, HMSO, Road Research Technical Paper No. 56, 1966.

2.4.8 Degree of Saturation

Degree of Saturation (DoS) is a key parameter for validating traffic models. It is advisable that all traffic engineers have a thorough understanding of DoS and how to accurately measure it on-site. Intrinsic to this understanding is knowledge of the different factors that can influence DoS, both on-site and in a model. This subsection describes the methodology recommended by TfL for measuring DoS. The method is designed to account for Underutilised Green Time (UGT), as defined in section B2.4.8.1, which can be calculated from DoS measurements.

A DoS survey should be conducted on all critical approaches for each modelled period. In order to achieve an overall measurement that is representative, data sampling should be distributed across the whole of each period during which DoS is being measured. As described in B2.4.7, multiple lanes can be combined into a single measurement if they behave identically in terms of flows and queuing.

To calculate DoS the surveyor is required to measure the period of full traffic demand. Recognising full traffic demand can require experience as at times a gap may develop between vehicles even though full demand is still present, for example where slow moving traffic approaches a stopline but individual vehicles accelerate at different speeds.

The surveyor is required to record the time from the beginning of green until the end of full demand, during which they record the number of PCUs that cross the stopline. The end of full demand occurs when there is no further traffic queuing or flowing at the stopline across all lanes being measured. The surveyor then records the number of PCUs that cross the stopline during any subsequent period of low demand. The number of PCUs must be recorded separately during each period of differing demand type. Finally the total length of the green period should be recorded.

In summary the following information should be recorded:

- Time at start of green;
- Time at start of full demand (if different from start of green);
- Number of PCUs crossing stopline during full demand;
- Time at end of full demand;
- Number of PCUs crossing stopline during low demand; and
- Time at end of green.

This process should be repeated ten times in order to obtain a mean average suitable for model validation. However, for sites which experience large variations in flow it may be necessary to record more samples to generate a representative value.

2.4.8.1 Underutilised Green Time

Underutilised Green Time (UGT) corresponds to the number of seconds of green time within a signal cycle where saturation flow is not achieved despite the presence of full demand. Full demand is defined as occurring when traffic is passing or attempting to pass the stopline during a green period. UGT is measured in seconds per cycle and is calculated from data recorded during DoS measurement.

UGT is comprised of two elements:

- ‘Wasted Green’, which describes the period of a cycle during which an approach experiencing full demand receives a green signal but traffic is unable to progress across the stopline, for example due to downstream exit-blocking; and
- ‘Sub Saturation Flow’, which describes the period of a cycle during which an approach receiving a green signal does not fully utilise the available capacity, i.e. for vehicles to proceed at saturation flow. This effect can be caused by a number of factors such as driver behaviour, signal offsets or downstream congestion.

At times traffic experiencing sub saturation flow may only be travelling marginally slower than would be the case during unrestricted saturation flow. This may not be noticeable to an on-street observer but its impact will be captured by UGT during data processing. UGT is calculated to quantify situations where congestion-related issues prevent fully saturated discharge. It is derived in a form that can be directly applied to available green time in traffic models such as TRANSYT and LinSig by utilising dummy staging, phase lags and/or bonus green.

If a negative UGT value is encountered it may indicate that the initial saturation flow measurement was inadequate and that further measurements are required. A negative UGT value highlights traffic that has been observed to discharge at a rate greater than the measured maximum saturation flow during a DoS survey.

Figure 2 illustrates a flow profile measured on-street for a link in two different scenarios. The blue curve shows a flow profile for a stopline during non-congested conditions. The orange curve shows a flow profile for the same stopline, but under congested conditions. The shaded area between the curves therefore represents the reduction in flow across the stopline due to congestion.

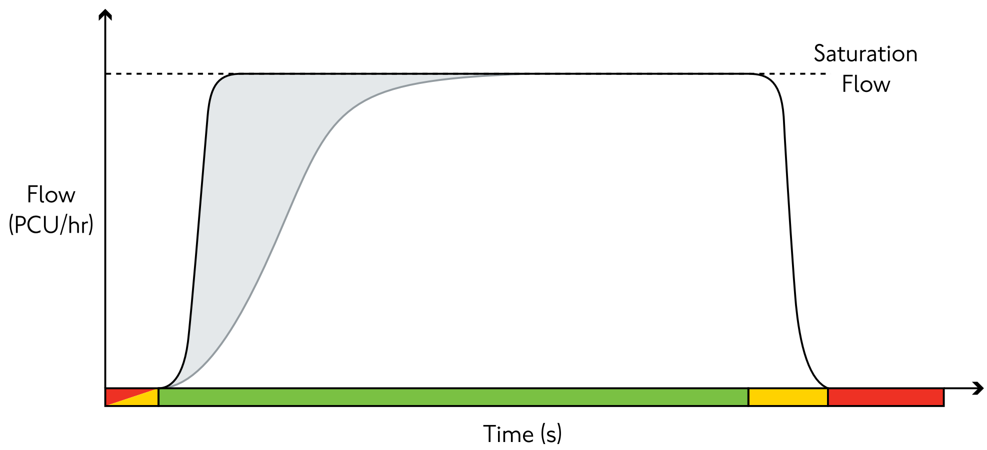


Figure 2: Flow profiles showing ‘normal’ (blue) and ‘congested’ (orange) conditions.

Figure 3 illustrates how the shaded area, equal to that in Figure 2, represents the difference in capacity as accounted for by UGT, i.e. the time period during which full saturation flow was not achieved. It also illustrates how these scenarios will be modelled within deterministic traffic models such as TRANSYT or LinSig. UGT calculations are unable to discriminate between time periods where vehicles are 'slow moving' or where vehicles are stationary. This imitates deterministic traffic modelling software such as TRANSYT and LinSig where vehicles are also assumed to be either stopped or moving at a saturated rate of discharge.

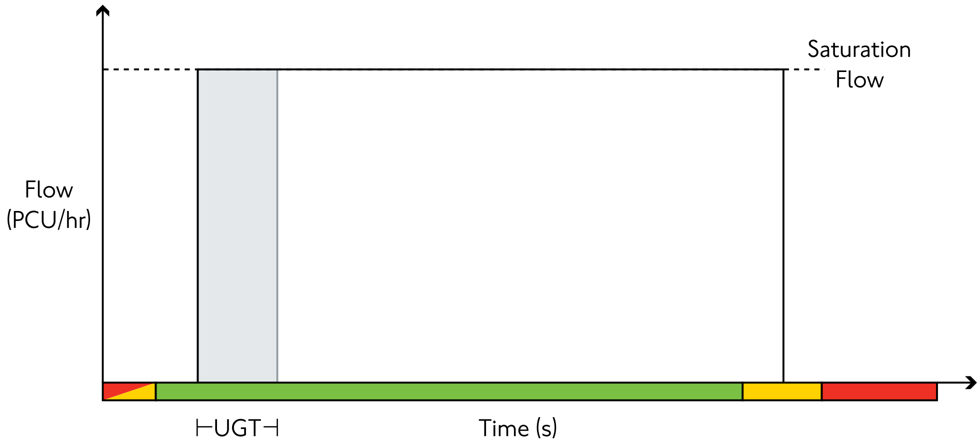


Figure 3: Congested conditions as modelled in LinSig or TRANSYT with UGT.

It is advisable to apply UGT to model the effects of congestion, as this technique avoids the need for a modeller to iteratively adjust the saturation flow in a model during calibration, and provides quantifiable evidence to justify the approach taken. Whilst it is possible to reduce saturation flows to achieve an effect analogous to the application of UGT (see Figure 4), it is theoretically unsound as the applied saturation flow no longer represents the maximum rate of discharge across a stopline.

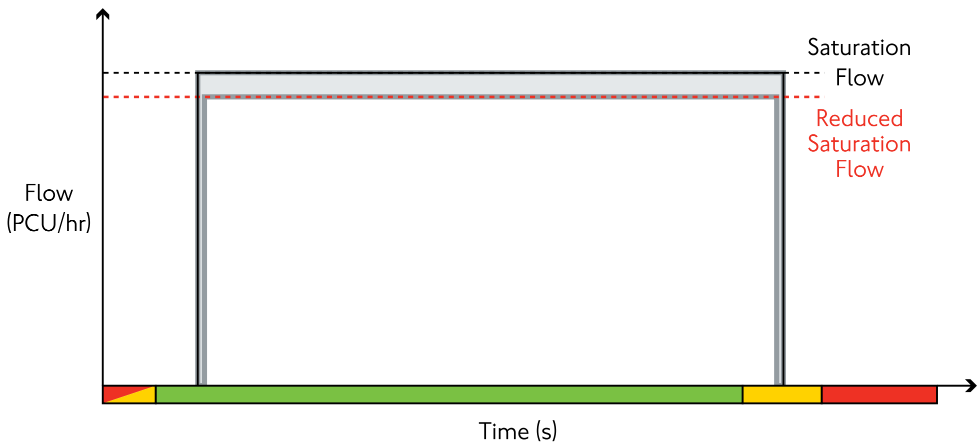


Figure 4: Incorrectly reduced saturation flow analogous to UGT applied in Figure 3.

For further details on the calculation of UGT values using data recorded during DoS measurements, refer to Appendix I.

APPENDIX A-3

DEGREE OF SATURATION MODELLING SPREADSHEET

Junction	
Arm	
Lane (Furthest Left hand lane = 1)	

Cycle	PCU	End of Saturation	Extra PCU	End of Green	Queue Length
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
total					
Sat Flow	#DIV/0!				
	#DIV/0!				
DOS	#DIV/0!				

APPENDIX A-4

BLOCKING BACK TECHNICAL NOTE

Underutilised Green Time

Technical Note

Issue: 1.0

December 2011

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CONTENTS

1. Introduction

The following technical note has been developed to assist with the generation of Underutilised Green Time (UGT) and degree of saturation (DoS) data for traffic model calibration and validation. This note explains the concept behind Underutilised Green Time, how vehicles should be surveyed on street to obtain correct values, and what tools are available to assist in generating accurate data. The information provided supersedes section 2.4.8.1 and Appendix I of the TfL Traffic Modelling Guidelines version 3[1].

1.1 Link Capacity

For the purpose of this note a traffic link consists of a group of lanes where traffic does not impact or interact with other streams of traffic on the same approach. A link will contain at least one lane and all lanes will share the same signal phase. Traffic flows and queuing within a link will be equally distributed unless short lane flares are present. Unbalanced queuing on full length lanes will highlight situations where it may be inappropriate to group adjacent traffic streams within the same link.

Saturation flow is used in traffic modelling to express the maximum rate at which vehicles can cross a stop line on a signal-controlled link. Saturation flow is determined by characteristics of the junction such as geometry, layout, turning radii, visibility, etc. In order to determine link capacity the saturation flow must be adjusted to account for the link's available green time:

$$c = \frac{g}{C} S \qquad \textit{Eq. (1)}$$

Where:

c = capacity (PCU/hour)
g = effective green time (sec)
C = cycle length (sec)
S = Saturation flow rate (PCU/hour)

1.2 Calibrating Link Capacity

Calibration describes the process of placing verifiable data into a traffic model to replicate observed street conditions. Inputting the correct link capacity is therefore critical if a traffic model is to accurately gauge the performance of any signalised network. Link capacity will be as described in Equation 1 unless congestion causes fully saturated traffic to discharge at a rate less than that defined by the saturation flow (e.g. due to factors such as exit-blocking, driver behaviour or the presence of cyclists).

[1] http://www.tfl.gov.uk/trafficmodelling

1.3 What is Underutilised Green Time?

Underutilised Green Time was developed to model the effect of congestion upon capacity, i.e. to quantify when fully saturated traffic discharges at a rate less than the rate defined by the saturation flow. UGT therefore corresponds to the number of seconds within a signal cycle where saturation flow was not achieved despite the presence of stop line demand. Demand is defined as when traffic is passing or attempting to pass the stop line during a green period.

UGT requires an on-site observer to correctly identify when vehicles begin to behave in a contiguous group (a platoon) across all lanes in a link, rather than as discrete individuals. This typically represents the period when the rate of discharge of vehicles across the stop line is at its maximum. Previous guidance classified this period as 'full demand', however some practitioners reported confusion in the terminology when putting UGT theory into practice on site.

In order to clarify the distinction between group and individual behaviour at a stop line, it is helpful to define the following terminology, which will be used throughout the remainder of this technical note:

- 'High Demand' – this is the period when a stop line with a green signal has more than two vehicles influencing each other's behaviour, commonly this will mean causing another vehicle to brake or divert, queuing to cross a stop line, or waiting to exit a junction; and
- 'Low Demand' – this is the period when vehicles behave independently, commonly this will mean they can approach and cross a stop line without needing to brake or divert for other vehicles.

1.4 How is Underutilised Green Time calculated?

UGT is measured in seconds per cycle and is calculated from data recorded during degree of saturation measurements. UGT is comprised of two elements:

- 'Wasted Green' – this describes the period of a cycle during which an approach experiencing high demand receives a green signal but traffic is unable to progress across the stop line, for example due to downstream exit-blocking; and
- 'Sub Saturation Flow' – this describes the period during which an approach receiving a green signal does not utilise the available capacity. This effect can be caused by a number of factors such as driver behaviour, signal offsets or downstream congestion.

UGT can therefore be described as the theoretical difference in seconds between the actual green time during which high demand occurs (G_d), and the estimated time that it would take for vehicles to cross the stop line during normal conditions (G_n), whilst accounting for lost time (L_t).

$$UGT = G_d - G_n - L_t \qquad \textit{Eq. (2)}$$

Where:

UGT = underutilised green time
G_d = actual green time under high demand
G_n = (3600/saturation flow) x number of PCUs during high demand period
L_t = start and end lost time

1.5 How is Underutilised Green Time applied to Link Capacity?

The impact of congestion upon link capacity can be easily observed when wasted green occurs due to exit blocking. In contrast the impact of congestion can be barely noticeable in situations where traffic is intermittently travelling marginally slower that saturation flow. UGT provides a means of quantifying these phenomena in a form that can be directly applied during model calibration. As an example Figure 1 illustrates a link flow profile measured on-street for a link in two different scenarios. The blue curve shows a flow profile during non-congested saturation flow conditions. The orange curve shows a flow profile for the same stop line, but under mildly congested (sub saturation flow) conditions. The shaded area therefore represents the reduction in available stop line capacity due to the influence of congestion.

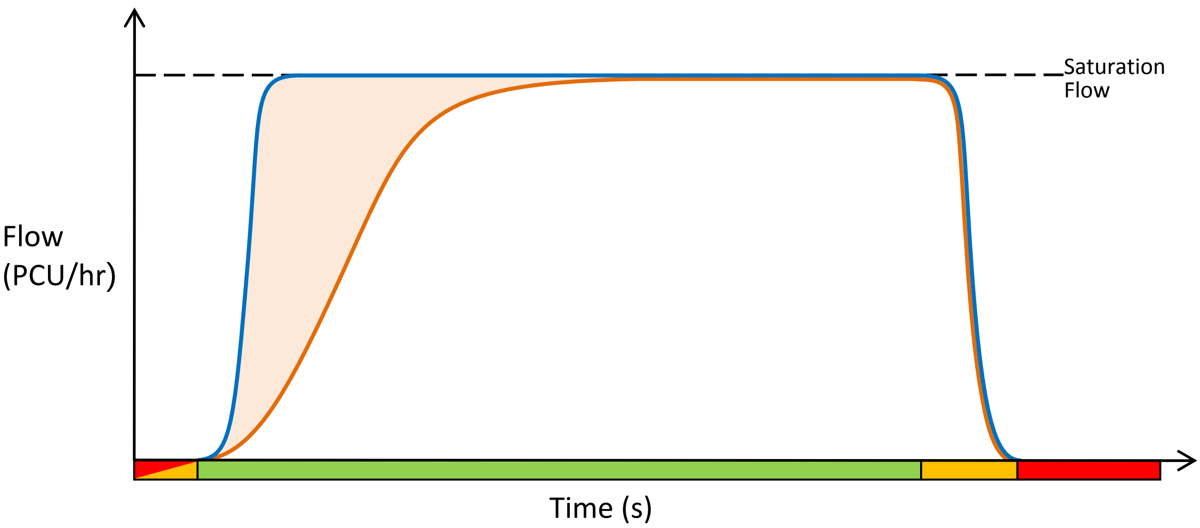

Figure 1: Flow profiles showing 'normal' (blue) and 'congested' (orange) conditions.

Figure 2 demonstrates how the shaded area, equal to that in Figure 1, represents the difference in link capacity as accounted for by UGT, i.e. the time period during which full saturation flow could not be achieved due to sub saturation flow. UGT will not discriminate between time periods where vehicles are 'slow moving' or where vehicles are stationary.

Appendix C

TRAVEL PLAN

Public

Inland Homes Ltd

HILLINGDON GARDENS

Residential Travel Plan

JULY 2020

PUBLIC

Inland Homes Ltd

HILLINGDON GARDENS

Residential Travel Plan

TYPE OF DOCUMENT (VERSION) PUBLIC

PROJECT NO. 70057679

DATE: JULY 2020

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QUALITY CONTROL

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Prepared by	Ben Smith	Ben Smith	Ben Smith	Ben Smith
Signature				
Checked by	Ben Smith	Ben Smith	Ben Smith	Ben Smith
Signature				
Authorised by	Tim Gabbitas	Tim Gabbitas	Tim Gabbitas	Tim Gabbitas
Signature				
Project number	70057679	70057679	70057679	70057679

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FIGURES

1 INTRODUCTION

1.1 COMMISSION

1.1.1. WSP has been commissioned by Inland Homes Ltd to produce this Travel Plan in support of the proposed development at the Former Master Brewer site, located in the London Borough of Hillingdon.

1.1.2. The site is located on Freezeland Way, to the northeast of the Hillingdon Circus junction, as shown in **Figure 1-1**. The site comprises 2.53 hectares of land and is currently a vacant brownfield site that was formerly occupied by the Master Brewer Motel and Public House, as well as associated buildings.

Figure 1-1: Site location

1.2 PROPOSALS SUMMARY

1.2.1. The proposed development description is as follows:

"Construction of a residential-led, mixed-use development comprising buildings of between 2 and 11 storeys containing 514 units (Use Class C3); flexible commercial units (Use Class B1/A1/A3/D1); associated car (164 spaces) and cycle parking spaces; refuse and bicycle stores; hard and soft landscaping including a new central space, greenspaces, new pedestrian links; biodiversity enhancement; associated highways infrastructure; plant; and other associated ancillary development."

1.2.2. As per the above description, the proposed development will comprise the following land uses:

- Residential (C3)
- Flexible retail (A1-A3)
- Community space (D1)
- Office (B1a)

1.2.3. A more detailed breakdown of the development proposals is detailed in **Table 1-1**.

Table 1-1: Proposed development schedule

Land Use	Relevant development quantum
Residential (C3)	514 units
Flexible retail (A1-A3) / community space (D1) / office (B1)	1,141m^2

1.3 TRAVEL PLAN OVERVIEW

1.3.1. In TfL's latest guidance, it defines a Travel Plan as:

'a long-term management strategy for an existing or proposed development that seeks to integrate proposals for increasing sustainable travel by the future occupier(s) into the planning process and is articulated in a document that is to be regularly reviewed by the future occupier(s) of the site'.

1.3.2. The Travel Plan involves identifying an appropriate package of measures aimed at promoting sustainable travel, with an emphasis on 'promoting alternatives to the car'.

1.3.3. The Travel Plan establishes a structured strategy with clear objectives and targets, supported by suitable policies and quality measures for implementation. It is noted that whilst the location of a development, its physical design and proximity to facilities and services create the conditions to make sustainable travel choices a natural option, communicating these opportunities to occupiers is also critical to the success of the Travel Plan.

1.3.4. The Travel Plan will be a 'living document' requiring monitoring, regular reviews and revisions to ensure it remains relevant to the site and those using the site and provides continuous improvements for its duration.

1.3.5. The Travel Plan demonstrates a holistic approach by incorporating both 'hard' engineering measures and 'soft' marketing and management measures necessary to address the transport impacts arising from development. The Applicant is fully supportive of the Travel Plan and appreciates the benefit of using and encouraging greater use of sustainable transport for both people and goods.

1.4 TRAVEL PLAN PURPOSE AND STRUCTURE

1.4.1. The measures set out in the Travel Plan have been discussed in length with Highway Officers at LBH to agree appropriate measures, targets and monitoring requirements prior to implementation.

1.4.2. The structure of the Travel Plan has been prepared to reflect the structure advised within TfL's Travel Planning Guidance, as follows:

- Section 2: Planning policy guidance
- Section 3: Accessibility and existing conditions
- Section 4: Travel demand
- Section 5: Objectives and targets
- Section 6: Travel Plan strategy
- Section 7: Travel Plan measures
- Section 8: Monitoring and review

2 POLICY CONTEXT

2.1 INTRODUCTION

2.1.1. The national and local transport policies relevant to this development are well documented and this section does not seek to replicate them. Instead, the key themes in the relevant national and local policies are summarised briefly in turn, and where relevant, policies which relate directly to the development are addressed.

2.2 NATIONAL POLICY

National Planning Policy Framework, 2019

2.2.1. The purpose of the planning system is to contribute to the achievement of sustainable development. At a very high level, the objective of sustainable development can be summarised as meeting the needs of the present without compromising the ability of future generations to meet their own needs.

2.2.2. Achieving sustainable development means that the planning system has three overarching objectives, which are interdependent and need to be pursued in mutually supportive ways, (so that opportunities can be taken to secure net gains across each of the different objectives):

- An economic objective – to help build a strong, responsive and competitive economy, by ensuring that sufficient land of the right types is available in the right places and at the right time to support growth, innovation and improved productivity; and by identifying and coordinating the provision of infrastructure.
- A social objective – to support strong, vibrant and healthy communities, by ensuring that a sufficient number and range of homes can be provided to meet the needs of present and future generations; and by fostering a well-designed and safe built environment, with accessible services and open spaces that reflect current and future needs and support communities' health, social and cultural well-being.
- An environmental objective – to contribute to protecting and enhancing our natural, built and historic environment; including making effective use of land, helping to improve biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy.

2.2.3. Transport issues should be considered from the earliest stages of plan-making and development proposals, so that:

- The potential impacts of development on transport networks can be addressed;
- Opportunities from existing or proposed transport infrastructure, and changing transport technology and usage, are realised – for example in relation to the scale, location or density of development that can be accommodated.
- Opportunities to promote walking, cycling and public transport use are identified and pursued.
- The environmental impacts of traffic and transport infrastructure can be identified, assessed and taken into account – including appropriate opportunities for avoiding and mitigating any adverse effects, and for net environmental gains.

- Patterns of movement, streets, parking and other transport considerations are integral to the design of schemes, and contribute to making high quality places. The planning system should actively manage patterns of growth in support of these objectives. Significant development should be focused on locations which are or can be made sustainable, through limiting the need to travel and offering a genuine choice of transport modes. This can help to reduce congestion and emissions, and improve air quality and public health. However, opportunities to maximise sustainable transport solutions will vary between urban and rural areas, and this should be taken into account in both plan-making and decision-making.

2.2.4. Planning policies should:

- Support an appropriate mix of uses across an area, and within larger scale sites, to minimise the number and length of journeys needed for employment, shopping, leisure, education and other activities.
- Be prepared with the active involvement of local highway authorities, other transport infrastructure providers and operators and neighbouring councils, so that strategies and investments for supporting sustainable transport and development patterns are aligned.
- Identify and protect, where there is robust evidence, sites and routes which could be critical in developing infrastructure to widen transport choice and realise opportunities for large scale development.
- Provide for high quality walking and cycling networks and supporting facilities such as cycle parking, (drawing on Local Cycling and Walking Infrastructure Plans).
- Provide for any large-scale transport facilities that need to be located in the area, and the infrastructure and wider development required to support their operation, expansion and contribution to the wider economy. In doing so they should take into account whether such development is likely to be a nationally significant infrastructure project and any relevant national policy statements.

2.2.5. If setting local parking standards for residential and non-residential development, policies should take into account: a) the accessibility of the development; b) the type, mix and use of development; c) the availability of and opportunities for public transport; d) local car ownership levels; and e) the need to ensure an adequate provision of spaces for charging plug-in and other ultra-low emission vehicles.

2.2.6. Maximum parking standards for residential and non-residential development should only be set where there is a clear and compelling justification that they are necessary for managing the local road network, or for optimising the density of development in city and town centres and other locations that are well served by public transport (in accordance with chapter 11 of this Framework). In town centres, local authorities should seek to improve the quality of parking so that it is convenient, safe and secure, alongside measures to promote accessibility for pedestrians and cyclists.

2.2.7. Applications for development should:

- Give priority first to pedestrian and cycle movements, both within the scheme and with neighbouring areas; and second – so far as possible – to facilitating access to high quality public transport, with layouts that maximise the catchment area for bus or other public transport services, and appropriate facilities that encourage public transport use.

- Address the needs of people with disabilities and reduced mobility in relation to all modes of transport.
- Create places that are safe, secure and attractive – which minimise the scope for conflicts between pedestrians, cyclists and vehicles, avoid unnecessary street clutter, and respond to local character and design standards.
- Allow for the efficient delivery of goods, and access by service and emergency vehicles.
- Be designed to enable charging of plug-in and other ultra-low emission vehicles in safe, accessible and convenient locations.

National Planning Practice Guidance, 2019

2.2.8. The National Planning Practice Guidance was published in 2012 and revised in 2019, offering updated and revised guidance on planning where necessary.

2.2.9. The online version allows stakeholders to be altered in real time when future amendments to individual policies are made, thereby ensuring that the most up-to-date guidance documents are available. The NPPG provides additional guidance to supplement the planning policies contained in the NPPF.

2.2.10. The NPPG provides clarity on the role, function and structure of the Transport Assessments and Travel Plans:

Transport Assessments and Statements are ways of assessing the potential transport impacts of developments and they may propose mitigation measures to promote sustainable development. Where that mitigation relates to matters that can be addressed by management measures, the mitigation may inform the preparation of Travel Plans.

2.2.11. Travel Plans, Transport Assessments and Statements can positively contribute to:

- Encouraging sustainable travel.
- Lessening traffic generation and its detrimental impacts.
- Reducing carbon emissions and climate impacts.
- Creating accessible, connected, inclusive communities.
- Improving health outcomes and quality of life.
- Improving road safety.
- Reducing the need for new development to increase existing road capacity or provide new roads.

2.2.12. They support national planning policy which sets out that planning should actively manage patterns of growth in order to make the fullest possible use of public transport, walking and cycling, and focus significant development in locations which are or can be made sustainable.

Good Practice Guidelines: Delivering Travel Plans through the planning process (DfT), 2014

2.2.13. The DfT guidelines are intended to assist all stakeholders in determining when a Travel Plan is required, how it should be prepared and what it should contain within the context of an integrated planning and transport process. The guidelines also set out how Travel Plans should be evaluated, secured, implemented, monitored and managed in the longer term as part of this process. Travel Plans are important for major new developments in order to:

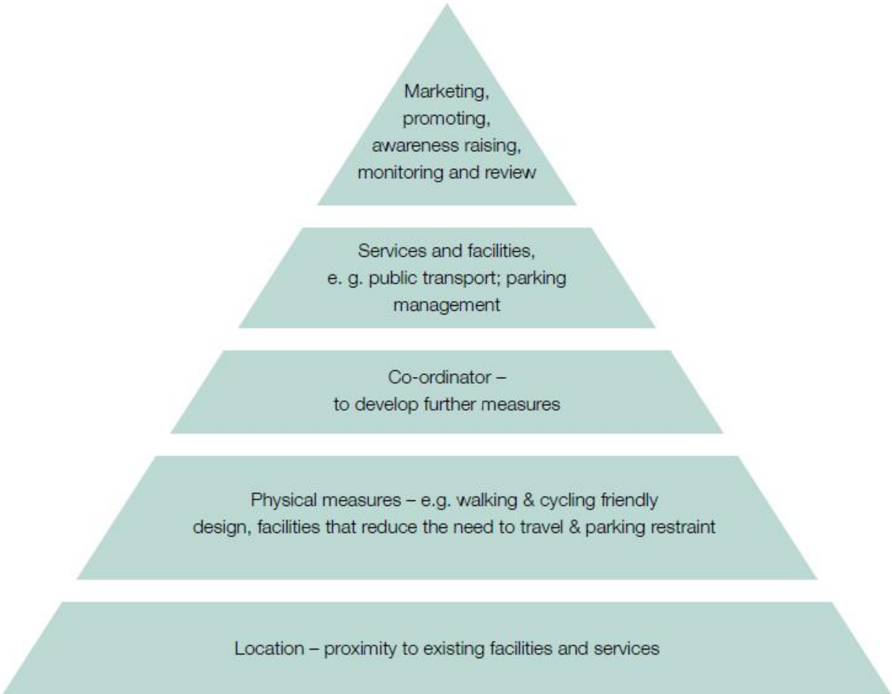
- “Support increased choice of travel modes.

- Promote and achieve access by sustainable modes.
- Respond to the growing concern about the environment, congestion, pollution and poverty of access.
- Promote a partnership between the authority and the developer in creating and shaping ‘place’.”

2.2.14. The document recognises that it can be helpful to view a Travel Plan for a new development as a pyramid of measures and actions, which is constructed from the ground up, with each new layer building on the last all set within the context of the outcomes sought. This Travel Plan Pyramid is shown in **Figure 2-1**.

2.2.15. The DfT’s Travel Plan Pyramid helps demonstrate how successful plans are built on the firm foundations of a good location and site design. Additional hard and soft measures should be integrated into the design, marketing and occupation of the site. In addition, parking restraint is often crucial to the success of the plan in reducing car use.

Figure 2-1: Travel Plan pyramid



2.3 REGIONAL POLICY

Draft New London Plan, 2019

2.3.1. A draft New London Plan was issued in December 2017 and revised in 2018 and again in July 2019. In the meantime the current 2016 London Plan remains adopted. The draft New London Plan provides useful context for the direction of future policy although no material weight is attached to its policies at this stage.

2.3.2. Policy T2 relates to Healthy Streets and seeks development that delivers patterns of land use that facilitate residents making shorter, regular trips by walking or cycling. The Healthy Streets approach recognises the importance of promoting and facilitating active modes of travel by making developments permeable and highly connected by foot and cycle with reduced vehicle dominance.

2.3.3. Policy T4 identifies that development proposals should reflect and be integrated with current and planned transport access, capacity and connectivity. Travel plans are noted as being able to help reduce negative impacts and bring about positive outcomes and are required in accordance with relevant Transport for London guidance.

2.3.4. Policy T5 sets out that development should encourage cycling and provides new cycle parking standards. Cycle parking and cycle parking areas should allow easy access and provide facilities for disabled cyclists. In places of employment, supporting facilities are recommended, including changing rooms, maintenance facilities, lockers and shower facilities (at least one per ten long-stay spaces is recommended).

The London Plan, 2016

2.3.5. The London Plan was initially published in July 2011 with subsequent alterations since adopted; Revised Early Minor Alterations to the London Plan in October 2013, Further Alterations to the London Plan (FALP) in March 2015 and Minor Alterations to the London Plan in March 2016 with a fix version in January 2017.

2.3.6. The London Plan sets out to ensure that London's transport is easy, safe and convenient for everyone and encourages cycling, walking and use of electric vehicles.

2.3.7. Policy 6.1 stresses the importance of closer integration of transport and development and hopes to encourage this by (inter alia):

- "Encouraging patterns of development that reduce the need to travel, especially by car.
- Seeking to improve the capacity and accessibility of public transport, walking and cycling, particularly in areas of greatest demand.
- Supporting development that generates high levels of trips only at locations with high levels of public transport accessibility, either currently or via committed, funded improvements.
- Improving interchange between different forms of transport, particularly around major rail and underground stations, especially where this will enhance connectivity in outer London.
- Facilitating the efficient distribution of freight whilst minimising its impacts on the transport network.
- Supporting measures that encourage shifts to more sustainable modes and appropriate demand management.

- Promoting greater use of low carbon technology so that CO2 and other contributors to global warming are reduced.
- Promoting walking by ensuring an improved urban realm.
- Seeking to ensure that all parts of the public transport network can be used safely, easily and with dignity by all Londoners, including by securing step-free access where this is appropriate and practicable."

2.3.8. Policy 6.3 states that: "workplace and / or residential travel plans should be provided for planning applications exceeding the thresholds in, and produced in accordance with the relevant TfL guidance".

TfL Travel Planning Guidance, 2013

2.3.9. In November 2013 TfL published a guidance document to combine and simplify the previous Travel Plan document 'Travel Planning for New Development in London: Incorporating Deliveries and Servicing' (January 2012).

2.3.10. One of the purposes of the guidance is to ensure that deliveries and servicing are taken into account from the earliest stage in the planning process. However, the document recognises that the level of detail provided in a Travel Plan about goods / servicing aspects will depend on the nature and scale of the development.

2.3.11. The guidance document sets out the core elements of a Travel Plan that are deemed essential. The essential elements are as follows: objectives, targets, measures, management, action plan, securing, and monitoring and review.

3 BASELINE CONDITIONS

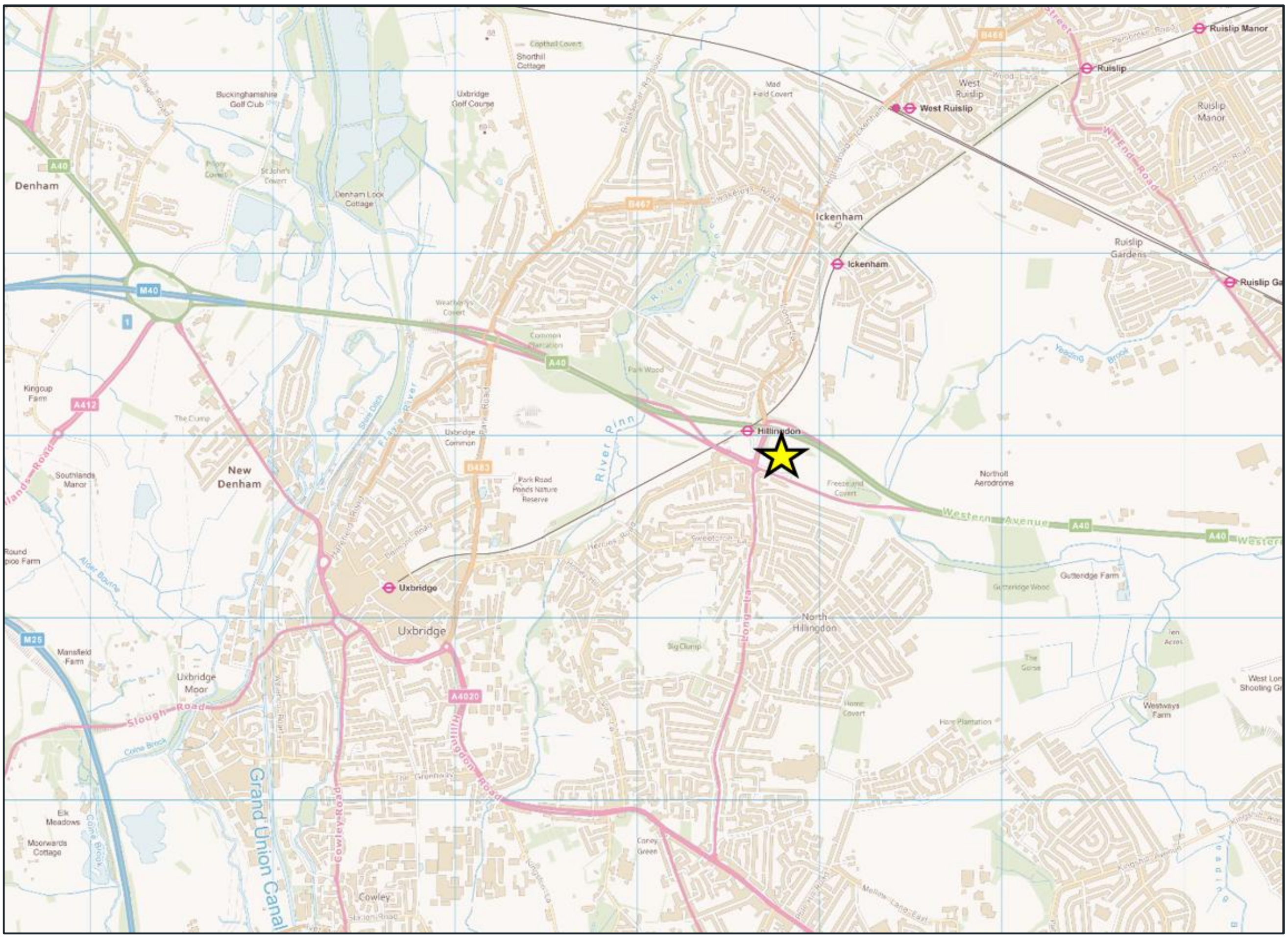
3.1 INTRODUCTION

3.1.1. This section details the existing transport characteristics and accessibility of the site in terms of highways, public transport, walking and cycling.

3.1.2. The site comprises 2.53 hectares of land and is currently a vacant brown field site that was formerly occupied by the Master Brewer Motel and Public House, as well as associated buildings.

3.1.3. The development is an ‘island’ site located between the A40 Western Avenue and the Hillingdon Circus junction, as shown by **Figure 3-1**. The site is bounded to the north and east by the A40 Western Avenue, to the south by Freezeland Way, and to the west by the A437 Long Lane.

Figure 3-1: Site location

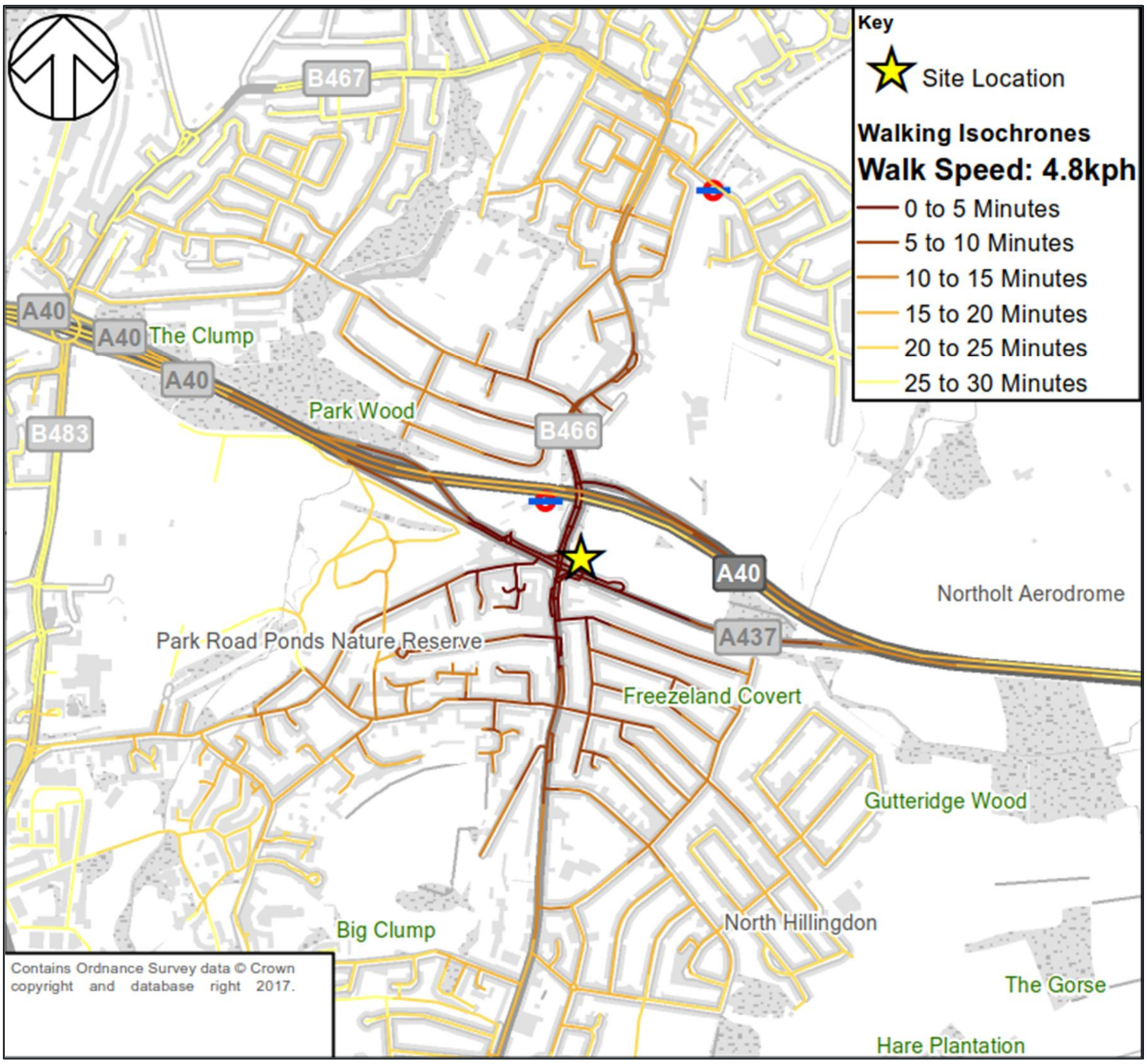


3.2 PEDESTRIAN ACCESSIBILITY

3.2.1. Though the development site is surrounded by busy roads on three sides, a network of well-lit footways border the site. These provide connections to the local amenities and facilities to the south of Hillingdon Circus as well as Hillingdon Underground Station. All arms of Hillingdon Circus have controlled pedestrian crossing points, allowing safe movements across the junction. All pavements in proximity to the site are at least 2 metres wide and are in good condition.

3.2.2. The walking isochrones displayed in **Figure 3-2** show 0-30 minute catchment for walking access. The isochrones assume a speed of approximately 4.8km/hr and demonstrate that the site is accessible to a large number of local facilities, amenities and an extensive public transport network. Uxbridge town centre, Ickenham and the A437 can all be reached within a 30 minute journey.

Figure 3-2: Walking isochrones



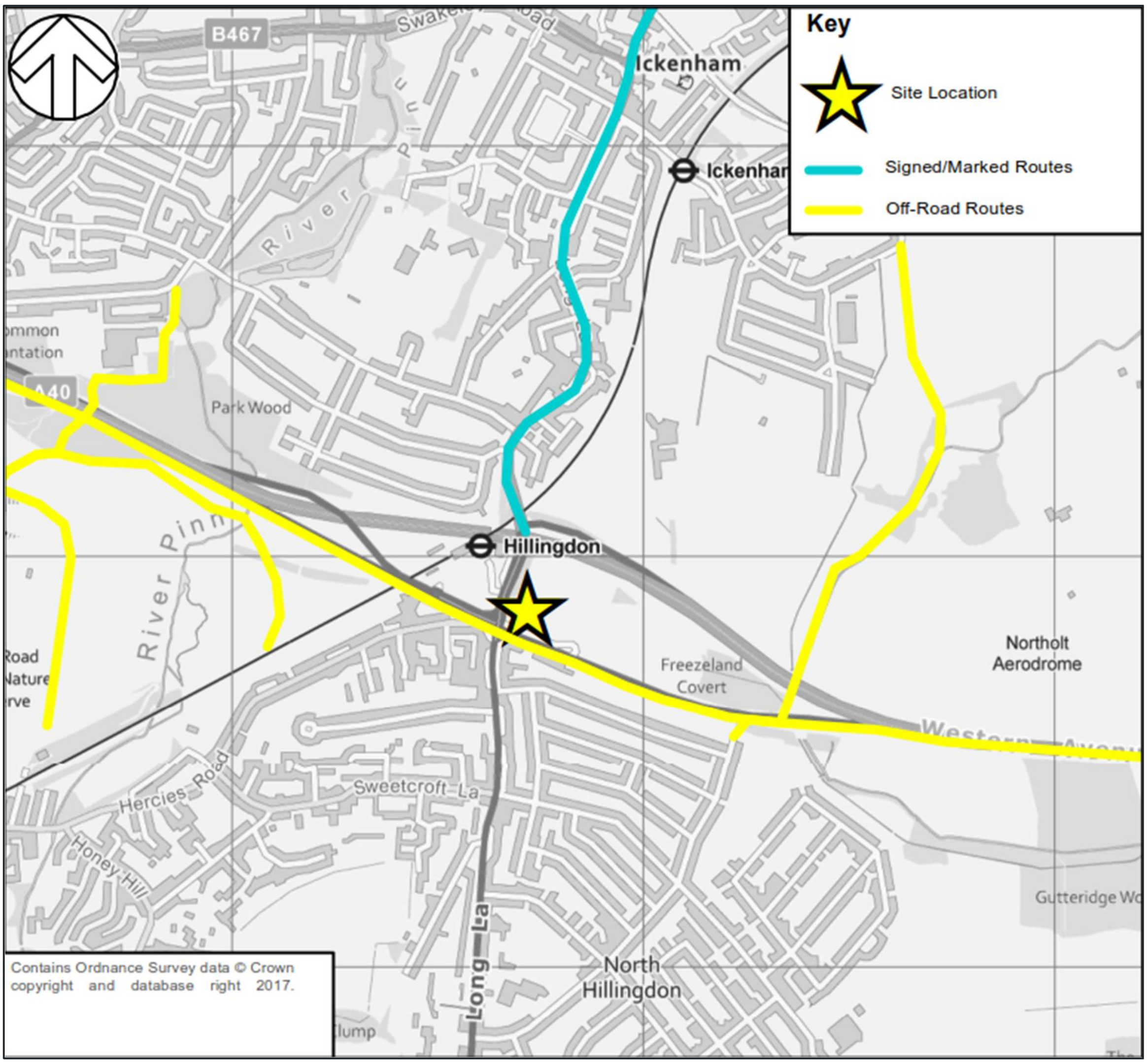
3.3 CYCLE ACCESSIBILITY

3.3.1. Though there are no London Cycle Network (LCN) routes in the direct vicinity of the site, there is a segregated cycle route that runs along the A40 Western Avenue from the Polish War Memorial Roundabout. Here the route switches carriageways, and continues east along the A40 Western Avenue until it reaches White City. At various points along this route there are opportunities to join LCN route 6 and other local routes towards destinations such as Southall, Wembley and Central London.

3.3.2. The off-road cycle route runs along the A40 westbound exit slip towards Freezeland Way, and continues past the site on to Western Avenue to the west of Hillingdon Circus. From here it connects to other local routes and trails around Hillingdon Athletics Stadium, offering the opportunity for recreational cycling.

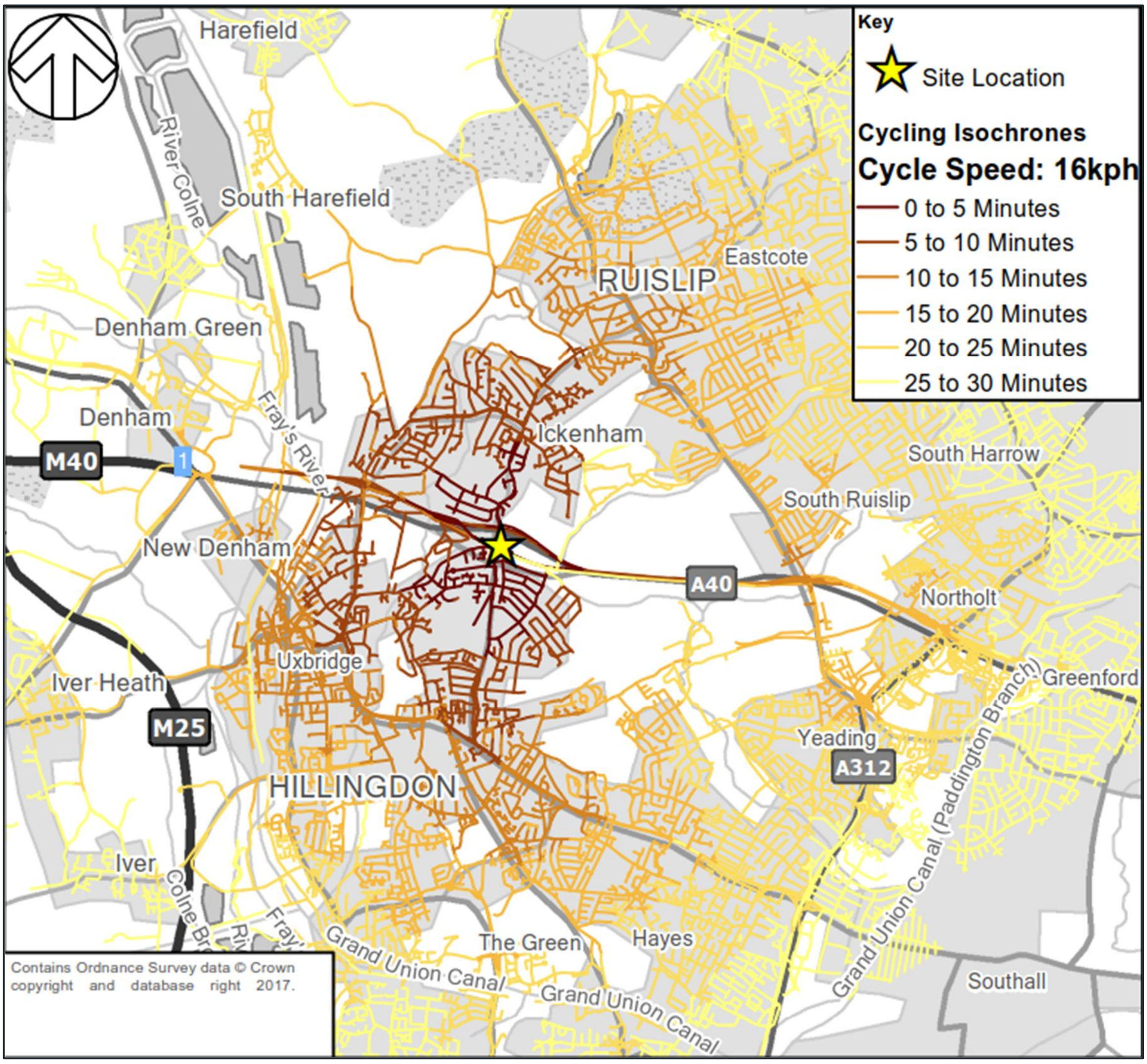
3.3.3. To the west of the site, an on-road cycle lane heads northbound along Long Lane towards Ickenham. **Figure 3-3** shows the local cycle routes in the area.

Figure 3-3: Local cycle routes



3.3.4. The cycling isochrones displayed in **Figure 3-4** show 0-30 minute catchment for cycle access. The isochrones assume a speed of approximately 16km/hr and demonstrate that it is possible to cycle from the site to Uxbridge and Ickenham within 5-10 minutes, and various destinations around Greater London including Heathrow Airport, Ealing and Harrow within 30 minutes.

Figure 3-4: Cycling isochrones



3.4 PUBLIC TRANSPORT ACCESSIBILITY

3.4.1. The PTAL methodology has been adopted by TfL as a means by which to quantify and compare accessibility to public transport services for given sites. It takes into account the time taken to access the public transport network, including:

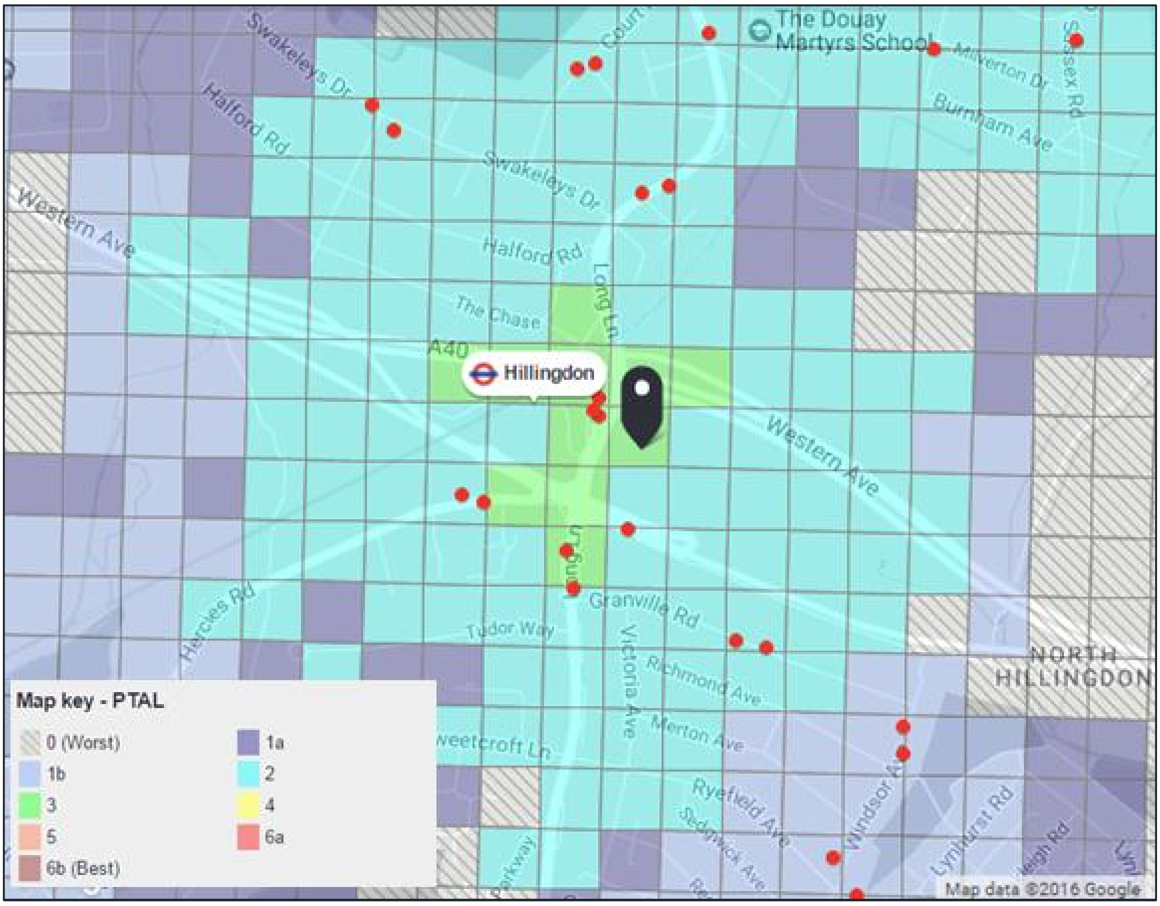
- The walk time to various public transport services.
- The average waiting time for each service.
- The reliability of each service.

3.4.2. The methodology is based on a walk speed of 4.8kph and considers railway stations within a 12 minute walk (960m) of a site and bus stops within an 8 minute walk (640m). The PTAL assessment is undertaken using the AM peak hour operating patterns of existing services.

3.4.3. An Equivalent Doorstep Frequency (EDF) is calculated for each of the public transport services accessible from the site based on the criteria described above. These individual EDF values are weighted to provide an accessibility index (AI) value for each service accessible from the site. The sum of the AIs for each mode are aggregated to provide a single measure of accessibility.

3.4.4. The PTAL level is 3, as shown by **Figure 3-5** indicating that there is a moderate level of accessibility to public transport to / from the proposed development.

Figure 3-5: PTAL map



London Underground

3.4.5. The site is located adjacent to Hillingdon Underground Station, which can be reached by crossing Hillingdon Circus and then walking approximately 200m north along Long Lane. The station is managed by London Underground Limited (LUL) and is situated on both the Metropolitan and Piccadilly lines.

3.4.6. Hillingdon benefits from being located one stop from the end of the Piccadilly and Metropolitan lines, meaning passengers are always able to board trains towards Central London during the peak hours, the majority of which get seats for their journey.

3.4.7. Combined, the two lines provide 17 trains per hour in the peak hours towards the centre of London and 16 trains per hour to Uxbridge. Tube frequency at Hillingdon is broken down further in **Table 3-1**.

Table 3-1: London Underground service frequencies

Peak / off-peak	Metropolitan line		Piccadilly line	
	Trains per hour (WB)	Trains per hour (EB)	Trains per hour (WB)	Trains per hour (EB)
Morning	10 – Uxbridge	2 – Aldgate (fast) 4 – Aldgate 3 – Baker Street	7 – Uxbridge	8 – Cockfosters
Evening	9 – Uxbridge	7 – Aldgate 1 – Baker Street	8 – Uxbridge	4 – Cockfosters
Off-peak	8 – Uxbridge	7 – Aldgate 1 – Baker Street	3 – Uxbridge	3 – Cockfosters

Buses

3.4.8. Bus stops providing access to local bus services are located within Hillingdon LUL Station drop-off area and to the south of Hillingdon Circus on Long Lane (A437). In addition, regional services between central London and Oxford operated by the Oxford Tube stop at Hillingdon LUL Station (London-bound) and to the south of the site on Freezeland Way (Oxford-bound).

3.4.9. Service frequencies for buses in the immediate vicinity of the site, including the forthcoming 278 route, are detailed in **Table 3-2**.

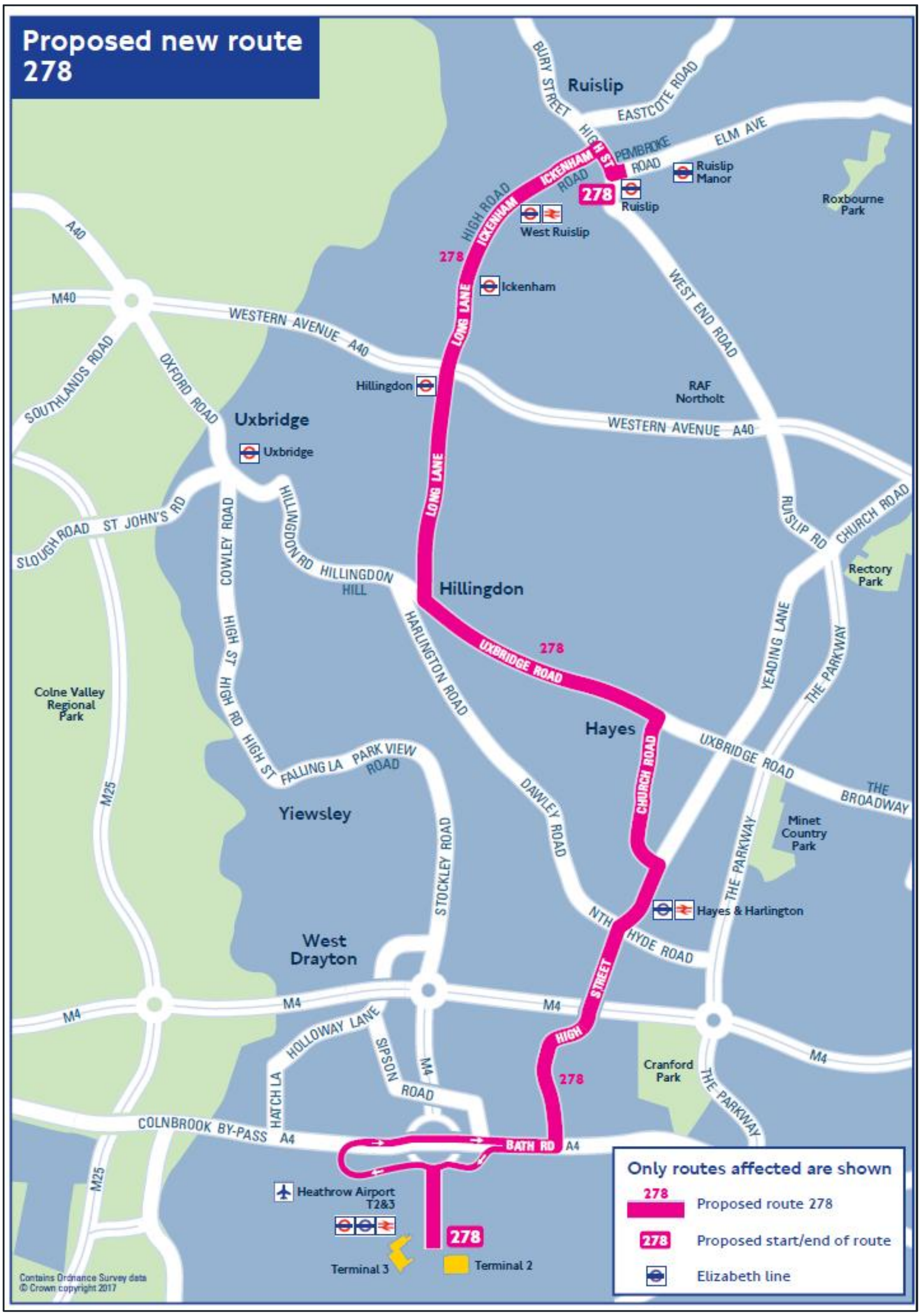
Table 3-2: Bus service frequencies

Service No.	Route	Weekday		Saturday		Sunday	
		Freq. (mins)	First / Last Service	Freq. (mins)	First / Last Service	Freq. (mins)	First / Last Service
U2	Uxbridge Underground – Brunel University	8	05:22 / 00:22	8	05:22 / 00:22	20	06:18 / 00:22
U10	Uxbridge Underground – Ruislip	60	07:01 / 19:02	60	06:59 / 19:03	N/A	No Service
Oxford Tube	Oxford – London Victoria	10	24 hour service	10	24 hour service	12	24 hour service
278	Ruislip – Heathrow	15	TBC	15	TBC	15	TBC

278 bus route

3.4.10. The 278 bus service is anticipated to come forward in December 2019, which will run directly past the site along Long Lane. The service will run from Ruislip town centre along Long Lane, past West Ruislip, Ickenham and Hillingdon Underground Stations, to Uxbridge Road. From here, it will continue towards Hayes, including Hayes and Harlington Station, which will be situated on the Crossrail line. The route will then head to Heathrow Airport Terminals 2 and 3, where it will terminate. The route is shown in **Figure 3-6**.

Figure 3-6: 278 bus route



3.4.11. The service will be operated by TfL, and the developer will provide a financial contribution towards the service operation. The bus is anticipated to operate with a frequency of four services per hour in both directions from conception. The 278 bus route will provide a much needed north-south public transport link along Long Lane.

3.4.12. A manual PTAL calculation has been undertaken, which has used updated service frequencies on the London Underground from Hillingdon Circus, as well as including the propose 278 bus route. The bus stop on the south side of Freezeland Way, serving the Oxford Tube route, has also been included.

Adding the 278 and Oxford Tube services, as well as amending service frequencies for the London Underground at Hillingdon Station, boost the site's PTAL to a 4, indicating a good level of accessibility.

3.5 HIGHWAY ACCESSIBILITY

3.5.1. The site is well connected by road to key destinations such as Uxbridge, Central London, Heathrow Airport, the M25 and the M40.

3.5.2. The site is immediately surrounded by roads to the north, west and south of the site. To the north lies the A40 Western Avenue, a major traffic route that is part of the Transport for London Road Network (TLRN) and red route network. This road is motorway standard and is grade separated from the development site.

3.5.3. The A437 Long Lane is situated to the west of the site, a two-lane dual carriageway providing links towards Ruislip in the north and Uxbridge Road in the south. This road provides the north-south link through Hillingdon Circus. To the south of this junction it turns into a single carriageway road. The road is subject to a 30mph speed restriction throughout.

3.5.4. Running parallel to A437 Long Lane on both sides is a single lane carriageway with one parking lane that provides direct access to the shop frontages along the north end of Long Lane.

3.5.5. Freezeland Way and Western Avenue provide the eastern and western arms of Hillingdon Circus respectively. Both roads are two-lane dual carriageways. Western Avenue provides access and egress from the A40 in the west, whilst Freezeland Way provides only egress from the A40 in the east. The eastbound carriageway of Freezeland Way loops round to meet the westbound carriageway on its way to Hillingdon Circus.

3.5.6. Hillingdon Circus is a signal controlled yellow box junction with four arms, Western Avenue to the west, Freezeland Way to the east, and the A437 Long Lane to both the north and the south. Pedestrian and cycle crossing facilities are situated on all arms of the junction.

3.5.7. Approximately 30m west of Hillingdon Circus, a priority junction connects the westbound carriageway of Western Avenue to Hercies Road. This single carriageway road then heads south and provides access towards Uxbridge town centre.

4 TRAVEL DEMAND

4.1 SITE MANAGEMENT

4.1.1. Given that the proposed development has not yet been constructed it is not possible to undertake site monitoring to establish baseline travel characteristics at this stage.

4.1.2. The travel characteristics of occupants of the proposed development will however be monitored on a regular basis once the development is occupied. Travel surveys will be undertaken for the residential land-use in accordance with the iTRACE monitoring system that feeds into the TRICS survey database.

4.1.3. This survey will accurately identify the sites travel characteristics and the results will be known as Year 0. The initial travel survey will be coordinated and publicised by the Travel Plan coordinator (TPC).

4.1.4. The format of the travel survey(s) will be agreed between the TPC and LBH prior to the survey being undertaken. It is envisaged that this will be a count of all trips by all modes at each access to the development for one weekday at an agreed date between the hours of 07:00 – 22:00. The travel surveys will be conducted by a TRICS approved survey company. After the initial travel survey, it is anticipated that the travel surveys will be undertaken during the same time of year as the previous travel surveys to ensure it provides a like-for-like comparison.

4.1.5. Further monitoring will be commissioned by the TPC and take into account cycle parking space usage and vehicle parking space usage over the period of one week at the same time as the previous travel surveys – this will help inform future improvements required to further encourage sustainable travel.

4.2 BASELINE TRAVEL DEMAND

4.2.1. In the absence of existing travel survey data at the site modal shares have been determined from the trip generation analysis and supplementary surveys derived within the Transport Assessment produced submitted alongside this application.

4.2.2. The trip generation forecast for the residential land use is presented in turn below, with full details of their derivation being provided within the Transport Assessment.

4.2.3. The residential trip generation is set out in **Table 4-1**. This trip generation exercise is based upon sites in the TRICS database and census mode of travel data.

Table 4-1: Forecast travel demand

Mode	AM Peak: 08:00-09:00			PM Peak 17:00-18:00		
	In	Out	Total	In	Out	Total
Underground	6	42	48	12	11	23
Bus	11	77	88	40	13	53
Motorcycle	1	3	4	2	1	3
Car Driver	18	60	78	41	20	61
Car Passenger	15	30	45	27	15	42
Bicycle	3	14	17	6	2	8
Foot	34	90	124	36	43	79
Total	**88**	**316**	**404**	**164**	**105**	**269**

4.3 INITIAL TRAVEL SURVEY

4.3.1. The initial travel survey for the development will be undertaken upon 50% occupation and provide an accurate breakdown of travel modes, to identify performance against predictions and to inform any necessary changes to the Travel Plan.

4.3.2. The results will include residents, deliveries as well as visitors.

5 OBJECTIVES AND TARGETS

5.1 OBJECTIVES

5.1.1. The objectives of the TP are to develop a set of mechanisms, initiatives and targets which seek to reduce the impact of travel on the environment arising from the site. The TP aims to reduce car dependency, particularly for single car occupancy trips and promote the use of more sustainable modes of transport.

5.1.2. The over-arching aim of the Travel Plan is to:

'Ensure that residents and visitors have the opportunity to travel to and from the site in the most sustainable manner appropriate for their journey'.

5.1.3. In addition to the TP aim, the following objectives have been identified:

- To establish sustainable travel principles for the development as a whole.
- To facilitate tailored travel information.
- To encourage healthy and active travel
- To reduce local congestion and associated externalities
- To minimise single occupancy vehicle and taxi trips
- To support car free lifestyles
- To raise awareness of sustainable modes of transport available for residents travelling to and from the site.

5.1.4. It is critical that the Travel Plan mechanism is an evolving process. Regular evaluation and if necessary, adaptation of implemented measures will increase the likelihood of the TP meeting its aims. It will also ensure that any shortcomings are identified and addressed at the earliest opportunity.

5.2 TARGETS

5.2.1. This section illustrates how the targets are linked to the objectives set out above. In accordance with TfL's best practice guidance all targets identified are SMART (specific, measurable, achievable, realistic and time-bound). Targets are set to measure progress towards the main objectives over the first 5 years of the Travel Plan and will be revised after 'Year 1' if necessary.

5.2.2. Two types of targets have been identified. 'Action' type targets are defined within Appendix three of TfL's guidance as 'non-quantifiable actions that need to be achieved' (e.g. appointing a TPC before occupation), whilst 'Aim' type targets are 'quantifiable and relate to the degree of modal shift the plan is seeking to achieve or other outcomes' (e.g. the date by which an increase in walk and cycle mode split will be achieved). The 'action' and 'aim' type targets for the site are set out in turn.

Action type targets

- Appoint TPC prior to first occupation.
- Produce a travel pack promoting alternative modes of transport and the key services provided through the Travel Plan.
- Undertake travel surveys in years one, three and five after 50% occupation.

Aim type targets

5.2.3. The Travel Plan targets aim to measure the progress made towards achieving the Travel Plan objectives. Targets are generally based on achieving modal shift through reductions in car use, particularly with a single occupant, and increases in the use of sustainable modes such as cycling.

5.2.4. As a travel survey of the site has not yet been undertaken and baseline mode shares are estimated using census data, trip generation forecasts and supplementary survey data presented within the Transport Assessment (as detailed within **Section 4**). Given that a baseline travel survey is not available, it should be noted that the mode split targets specified within this section will be indicative and will therefore require refinement once the results of the initial Travel Survey have been reviewed. The initial travel survey will be undertaken upon 50% occupation of the residential units.

5.2.5. Targets will be reviewed throughout the life of the Travel Plan. Indicators will measure the progress towards targets, which for the most part will be ascertained from the main mode listed by residents of the Site in the iTRACE/ TRICS compliant monitoring surveys conducted when the buildings currently under construction are completed and occupied.

5.2.6. This Travel Plan recognises that it is not possible to set out accurate targets far in the future (beyond the next interim 2 year period). Given this, it should be acknowledged that the targets may change over time as results from on-going monitoring become available. This will be discussed and targets agreed with LBH travel planning officers.

Residential mode share targets

5.2.7. The primary 'aim type' targets for the residential element have been derived relative to mode share identified from the baseline travel demand forecasts set out within **Section 4** (reproduced from the Transport Assessment).

5.2.8. Whilst the car driver journey to work mode split derived from the trip generation calculations within the Transport Assessment is considered to be sustainable and does not have a material impact upon the surrounding highway network, the following three primary aim type targets for the residential element of the scheme have been identified.

- **Reduction in car driver trips**: The Travel Plan will aim to reduce the residential car driver mode share during peak hours by 10%. The target has been informed by the availability of public transport in this accessible location, and is therefore considered achievable within a 5 year timeframe.
- **Increase in sustainable travel**: In accordance with the Mayor's aspirations for 80% of all trips in London to be made on foot, by cycle or using public transport by 2041, the Travel Plan will aim to achieve an 80% mode share by modes other than car driver during the AM and PM peak hours. This target is considered achievable within a 5 year timeframe.
- **Increase in cycling**: In accordance with the Mayor's aspirations to deliver an increase in cycling by 2026 relative to 2001 levels, the Travel Plan will encourage cycling as a sustainable mode of transport with the aim increasing the cycling mode share from a forecast level.

5.2.9. It is noted that increases in public transport mode share would also be forecast as part of delivering a mode shift away from private car usage. Whilst the location of the development and its accessibility to public transport services would be expected to encourage a natural modal shift towards these modes, further promotion of the availability of public transport services will be provided through the production of a residential travel pack with targeted personalised journey planning being deployed in the event that the targets identified are not achieved.

Interim targets

5.2.10. It is proposed that the ‘aim’ type target will focus primarily on the reduction of car driver mode share relative to the baseline travel demand forecasts. This will naturally reflect in an increase in other sustainable modes of travel, such as by bus, London Underground or cycling.

5.2.11. The forecast target to be achieved over the five year duration of the Travel Plan is to achieve a 10% reduction in single occupancy vehicle trips compared to those recorded by the initial baseline survey. The Travel Plan will have a five year timeframe, unless otherwise agreed in writing with LBH.

5.2.12. The initial travel survey will be undertaken upon 50% occupation and the base updated accordingly.

6 TRAVEL PLAN STRATEGY

6.1 TRAVEL PLAN COORDINATOR

6.1.1. A Travel Plan coordinator, (TPC) will be appointed to take responsibility for the development and management of the plan. The TPC will ensure that the adoption of the Travel Plan is effective and efficient, and will be included in all green leases for tenants.

6.1.2. The TPC role will be funded directly by Inland Homes from the commencement of the Travel Plan and until the completion of the Year 5 monitoring surveys. After this time, it is envisaged that the TPC role will be reduced but will include keeping public transport notice boards and other Travel Plan information up-to-date and relevant.

6.1.3. The responsibilities of the TPC can be summarised as:

- Giving a ‘human face’ to the Travel Plan – explaining its purpose and the opportunities on offer.
- Helping establish and promote the individual measures in the plan.
- Ensuring the structures for the on-going management of the plan are set up and running effectively.
- Liaising with public transport operators and other service providers such as car club operators.
- Overseeing the monitoring and reporting of the travel plan including liaising with LBH where appropriate.
- Overseeing and monitoring the regular surveys and questionnaires, which will inform the on-going development of the plan.
- The TPC will also undertake regular checks (monthly) of the information available on notice boards to ensure the content displayed is up to date.
- Administration of the Travel Plan, which involves the maintenance of necessary paperwork, consultation and promotion. This ensures the plan remains up to date and provides current information to readers.
- Measuring success and monitoring change.

6.2 MARKETING STRATEGY

6.2.1. It is recognised that a marketing and communication strategy is key to the success of the Travel Plan. The marketing strategy will aim to raise awareness of the key services and facilities implemented as part of the Travel Plan and disseminate travel information and notification of events and facilities provided.

6.2.2. Each residential unit will be provided with a branded Welcome Pack on first occupation. The welcome pack will include a summarised version of the Travel Plan along with information on public transport, the local walking and cycling network, contact details for taxi operators, and local Car Clubs.

6.2.3. Residents will, as a consequence, be made aware of the Travel Plan and of its branding, including the purpose and objectives of the Travel Plan, along with specific measures such as the cycle parking. In conjunction with the Welcome Pack, marketing activity will be undertaken at the point of sale (where possible). Sales staff in the Marketing Suite will be fully briefed on the Travel Plan.

6.3 SECURING THE TRAVEL PLAN AND FUNDING

6.3.1. The provision of an approved travel plan in accordance with current TfL guidance together with the implementation of site wide 'action' type targets will be secured through planning condition for the development.

6.3.2. A commitment to the travel plan strategy for the site forms part of the commitment to implement the Residential Travel Plan to discharge conditions.

WSP

7 TRAVEL PLAN MEASURES

7.1 INTRODUCTION

7.1.1. This section outlines the 'hard,' (infrastructure) and 'soft,' (travel management) measures that have been implemented throughout the site to maximise sustainable travel behaviour. It outlines the overarching measures which have been implemented on site in order to achieve the objectives identified within **Section 5**. The measures have been grouped into two types as follows and considered in turn in the following sections:

- 'Hard' engineering measures incorporated into the design of the development.
- 'Soft' marketing and management measures which have been implemented as part of the development proposals to ensure that sustainable travel behaviour is maximized.

7.1.2. **Figure 7-1** details the 'hard' and 'soft' measures proposed.

Figure 7-1: Travel Plan initiatives

HARD MEASURES	SOFT MEASURES
New / Improved Walking & Cycling Routes	Travel Plan Co-Ordinator Appointment
Improved Bus Stop	3 Years Free Car Club Membership
Up to 4 Car Club Bays	Oyster Card Credit *(£40 credit note per household)*
Over 30 Electric Vehicle Charging Points	Monitoring Plan (TRICS / iTRACE compliant)
Over 950 High Quality Cycle Parking Spaces	Residential Travel Pack
New Cycle Hub On-Site	London Cycling Campaign Promotion
Brompton / Traditional Bike Hire Facilities	Community Notice Boards

7.2 HARD MEASURES

7.2.1. As mentioned above, 'Hard' measures refer to engineering measures incorporated into the design of the development to promote more sustainable travel. Many physical aspects of the development design will influence travel patterns from the outset. These 'hard' engineering measures are set out below.

Off-site highway proposals

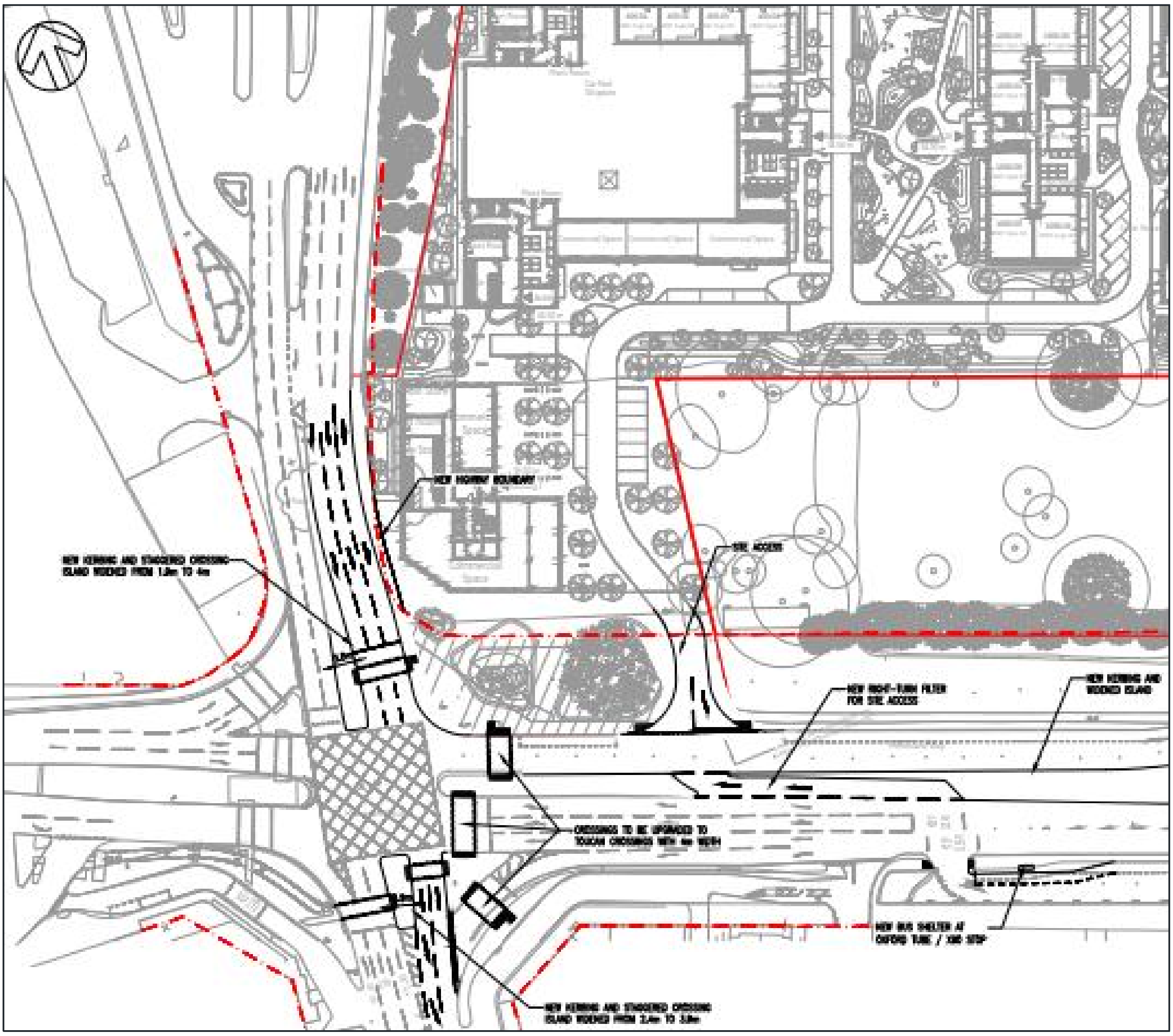
7.2.2. The entrance to the site takes the form of a 'gateway', with landscaped public realm leading towards the retail units and residential blocks. It will act as an extension of the high street, providing good pedestrian connections to both Hillingdon Underground Station and the shops and services along Long Lane.

7.2.3. Pedestrian and cycle access will be provided along the main desire lines, such as from Long Lane north towards the cycle path along the southern side of Freezeland Way. Adjustments will be made along the northern, eastern and southern pedestrian crossings of the Hillingdon Circus junction. The pedestrian islands will be widened, enhancing safety and ease of access for pedestrians and cyclists moving across the junction. The proposals include widening the central staggered pedestrian islands on Long Lane North from 1.9m to 4m and on Long Lane South from 2.4m to 3.9m. It is also proposed to widen the eastern staggered crossing island from 3.9m to 4.7m, and the eastern crossing will be upgraded to a toucan crossing, providing improved connections by bike towards the cycle path along the south side of Freezeland Way. The right turn filter along Freezeland Way westbound will also be extended, as recommended in the Road Safety Audit. It is presumed that these works would form part of the off-site highways proposals to be delivered prior to occupation as part of the Section 278 works.

7.2.4. In addition, the Oxford Tube bus stop along Freezeland Way will be widened to allow for a suitable bus shelter. Dropped kerbs will also be provided to allow for mobility impaired access.

7.2.5. These improvements are shown in shown in **Figure 7-2**, and will help connect to convenient routes towards local facilities and the public transport service access points within the immediate surrounding area.

Figure 7-2: Off-site highway improvements



Public transport

7.2.6. It is proposed that the developer will provide a financial contribution towards the service operation for the forthcoming 278 bus route. The bus is anticipated to operate with a frequency of four services per hour in both directions from conception. The 278 bus route will provide a much needed north-south public transport link along Long Lane. Bus contributions will significantly enhance local residents' access to local bus services and will enhance the feeling of a focal transport 'hub' at Hillingdon Underground Station on the edge of the development. The service will be highly accessible to those living and working across the site and local area.

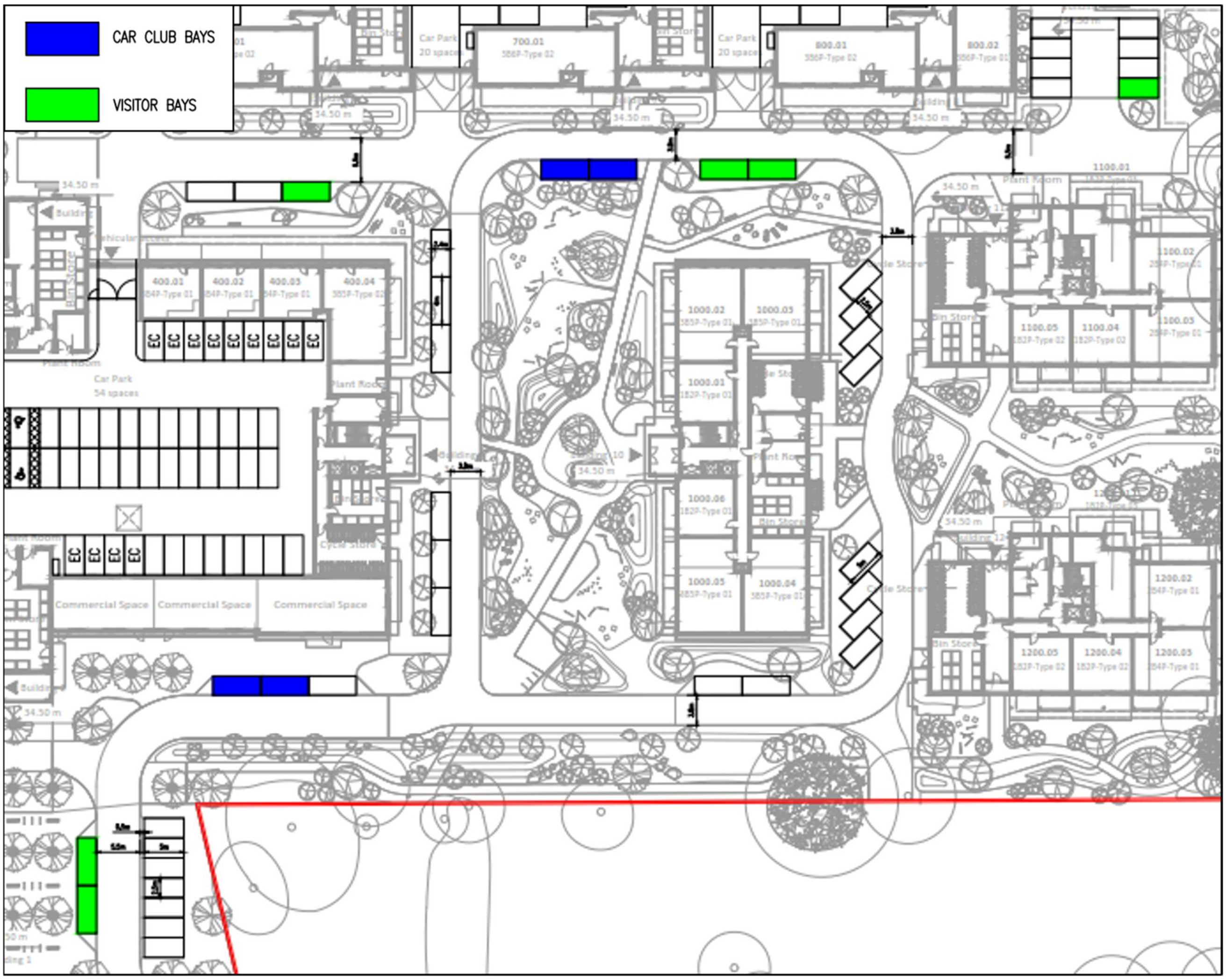
Car club

7.2.7. Initial discussions with car club operators ZipCar and Enterprise suggest that the development at full build out could support up to 4 car club cars.

7.2.8. It is proposed that four car club cars are provided within the site to support the development. It is envisaged that one car will be provided upon initial occupancy, with usage monitored and reported prior to implementation of a second vehicle. ZipCar have a threshold of 45% utilisation before they look to increase the number of car club vehicles on site. Enterprise adopts a lower threshold of approximately 30% utilisation. This monitoring exercise would help to inform the Travel Plan targets and also the number of spaces to be provided for future phases and help ensure that the number of car club vehicles on site meets the demand.

7.2.9. **Figure 7-3** shows the internal site road from the site access, including the proposed car club bay locations in blue. This location will maximise exposure and ensures the bays are conveniently located regardless of which block future residents reside in.

Figure 7-3: Indicative car club bay locations



7.2.10. The chosen car club provider will be marketed at the development through:

- Bespoke marketing material.

- Advertisement within the development.
- Car Club Ambassadors.

7.2.11. It is recognised that the best time to influence travel behaviour is when residents first move into or utilise a new development. The car club will therefore be in place and operational prior to occupation of the first dwelling. New residents will be provided with 3 years' free annual membership that will be funded by the developer.

7.2.12. As part of the TPC's duties, the benefits of the car clubs will be highlighted to future residents, including:

- Cheaper: owning a car has the added cost of insurance, tax, service and maintenance and depreciation.
- Greener: generally those involved in the scheme choose walking, cycling and public transport as their mode of travel, using the car club only when it is the best option.
- Convenient: you can book with a minute's notice and be on your way in a clean, well looked after car, which you use only for as long as you need it.

Electric vehicle parking

7.2.13. To encourage sustainable travel, electric vehicle charging points will be provided in line with the draft New London Plan standards. The draft New London Plan demands that 20% of residential parking spaces across the development have electric vehicle charging points, with the remaining bays featuring passive provision for future conversion into electric charging bays.

7.2.14. These proposals ensure that:

- All electric vehicle parking spaces are clearly signed and located in prominent, convenient and accessible locations in the car parks e.g. close to the entrance of facilities.
- They meet the appropriate technical standards for the type of development.
- A full cabling network will be installed in the car parking area to support all active and passive charging points (32 amp rated to ensure flexibility).
- The default socket type to install at 'active' charge points will be Type 2 IEC62196-2 connector.
- The car club parking spaces will be prioritised for the provision of Electric Vehicle Charging points, especially with regard to the provision of passive charging infrastructure that would cover all car club parking spaces.
- There is a five metre level surface at the end of the ramp to allow for vehicles and pedestrian visibility.

7.2.15. **Table 7-1** sets out the technical standards that will be used for the electric vehicle charging points for the development.

Table 7-1: Electric vehicle charging points technical standards

Land use	Voltage (V)	Current (amps)	Nominal charge power (kW)
Residential	230	13-16, single phase	3

New and improved pedestrian and cycling facilities

7.2.16. As part of the development proposals, significant improvements are proposed to the highway network immediately surrounding the site that will benefit pedestrians and cyclists, namely:

- The entrance to the site at the south-eastern corner of the site takes the form of a 'gateway' acting as an extension of the high street with landscaped public realm.
- It is proposed to improve pedestrian and cyclist crossing facilities at Hillingdon Circus, with pedestrian islands being widened and modernised across the north, east and south arms of the junction to enhance safety and to provide additional space for wheelchair users, pedestrians with pushchairs, and cyclists.
- The southbound approach from Long Lane North will be re-aligned to allow for the widening of the pedestrian crossing islands on the north and south junction arms.
- The footway at the Oxford Tube bus stop along Freezeland Way will be widened to allow for a suitable bus shelter. Dropped kerbs will also be provided to allow for improved mobility impaired access.

7.2.17. These improvements are shown in Drawing SK 70028642-013 in **Appendix B**, and will help connect to convenient routes towards local facilities and the public transport service access points within the immediate surrounding area.

Cycle parking - residential

7.2.18. Cycle parking provision will meet the minimum standards set out within the draft New London Plan that requires provision of one cycle space per 1 bedroom unit and 2 cycle spaces per 2+ bedroom unit. Its implementation considers:

- Layout – all parking is conveniently located and laid out to ensure that users can comfortably manoeuver in and out of cycle stands.
- Signage – signage will be provided on and near the site directing users to cycle parking facilities.
- Attractive – cycle parking facilities will be maintained to a good condition to ensure it is inviting to use.
- Secure – to be located in areas where they have high levels of passive surveillance and where this is not possible, security lighting will be implemented to further reduce the risk of bike theft.
- Covered – future residents will benefit from cycle parking that is sheltered and protected from the elements.
- Type of stand – Sheffield / Camden type stands will be used. Front wheel locking stands will not be considered.

7.2.19. The cycling related measures will contribute towards the objectives of LBH's 'Go Cycle Programme', which is designed to encourage more people to cycle and improve safety while providing better streets and places for everyone.

7.2.20. **Table 7-2** shows the site-wide cycle parking provision. It has been assumed that the flexible commercial use will take the form of A2-A5 F&B retail.

Table 7-2: Cycle parking provision

Land Use	Draft London Plan standards for long-stay parking	Draft London Plan standards for short-stay parking	Relevant development quantum	Long-stay cycle parking provision	Short-stay cycle parking provision
Residential (C3)	1.5 spaces per 2 person 1 bed	1 space per 40 units	221	332	13
	2 spaces per 2+ bed		293	586	
Flexible retail (A3)	1 space per 175m^2	1 space per 40m^2	1,141m^2	7	29
Total				**925**	**42**

New cycle hub

7.2.21. The developer has agreed that the proposed development will provide a new 'Cycle Hub' to be located within the site. It will be situated at the front of Block 4 within the landscaped public realm. This forms part of the suite of sustainable transport initiatives that will be implemented across the site.

7.2.22. The cycle hub is located close to Hillingdon Underground Station and will benefit both new residents and existing local residents. This would help contribute towards the draft Mayor's Transport Strategy (MTS) target which aims to increase cycling mode share across London from 1% in 2001 to 5% by 2026.

7.2.23. Such facilities are becoming more widespread across London with recent 'Cycle Superhubs' implemented at Hounslow West and North Greenwich Stations. The scale of the hub will at a minimum include:

- High quality, visible and conveniently located visitor cycle parking, which enables the cycle to be secured by the frame and at least one wheel.
- Brompton / traditional cycle hire facilities.
- Repair and maintenance facilities.
- At least 5-10% of provision in the form of accessible stands.
- The provision of CCTV, lighting and shelters where appropriate.
- Safe and conveniently located cycle access routes to and from the station, which link with other cycle routes in the area.
- Signage to, through and from the station area, connecting to cycle routes / key demand routes and the cycle parking facilities.

7.2.24. **Figure 7-4** provides an example of a similar cycle hub that has been recently implemented at Teddington Station.

Figure 7-4: Teddington Cycle Hub

7.2.25. Implementation of this will contribute towards:

- Increasing the number of residents cycling within the local area.
- Raising awareness and increase the visibility and appeal of cycling as a mode of travel.
- Improve cycle security.
- Improve customer satisfaction with station and interchange facilities in the area.

7.2.26. The facilities will include CCTV cameras to provide security, bike maintenance facilities and a weather & live departure screen confirming train times. Examples of this at Teddington Station are shown in **Figure 7-5**.

Figure 7-5: Cycle Hub facilities at Teddington Station

7.2.27. It is proposed that a Brompton and traditional bike hire facility is provided within the Cycle Hub, which will also be easily accessible to users of Hillingdon Underground Station. This will provide local residents and future residents with access to 24/7 automated folding bike hire and traditional bike hire (in 50:50 proportion).

7.2.28. The Brompton bike hire station will target different journeys to the central London cycle hire scheme, due to offering more flexibility in journey type and duration, at one simple low price. The docks allow people to take out bikes and use them for a rolling 24 hour period, as opposed to sub-30 minute journeys with the Santander bicycle hire scheme. This means people can treat the Brompton bikes as if they are their own, taking them to work or home, folding them and keeping them by their desks.

7.2.29. It also provides the added flexibility for combined journeys, as these can be transported on buses & trains, and in taxis & cars. Users will need to register online with Brompton which will then allow them to hire a bicycle for 24 hours. Having become a member, users:

- Can reserve a locker to return your bike to either online or by text. Users can return the Brompton bike to any public dock in the UK network. For example, you can take a bike out at Hillingdon and return it to Peterborough.
- Can keep a bike out for as long as you want as charges will just roll over. You only need to make a reservation to return the bike once you decide to give it back.
- Have a choice between two tariffs:

  Frequent - £20 annual fee and daily hire of £2.50.
  Leisure - £1 annual fee and daily hire £5.

7.2.30. Within the Cycle Hub, it is also proposed that a traditional bike hire dock is provided. This will provide local residents and future residents with access to traditional bike hire. It is proposed that there will be a 50:50 split between the proportion of Brompton and traditional bicycles that are available for hire.

7.3 SOFT MEASURES

7.3.1. As mentioned earlier in this section, 'soft' measures refer primarily to marketing and management measures, as opposed to engineering measures incorporated into the design of the development. The 'soft' measures proposed are discussed in turn.

Appointment of Travel Plan coordinator

7.3.2. A Travel Plan Coordinator (TPC) will be appointed prior to first occupation and be responsible for managing and implementing the Travel Plan. It is anticipated that the role will be fulfilled by a member of the residence committee or an appointed consultant. Their role will focus on:

- Day to day liaison with all stakeholders as necessary – giving a 'human face' to the Travel Plan.
- Implementation of the Travel Plan measures.
- Managing travel information including distribution of a welcome pack to new residents.
- Promoting non-car travel through the Travel Plan measures.
- Reporting progress to any Travel Plan stakeholders, including LBH.
- Managing the monitoring and progress of the Travel Plan targets.

Oyster travel card

7.3.3. Application forms will be provided to future residents for one Oyster Card per dwelling upon first occupation, with £40 credit to be funded by the developer. This will encourage residents both to utilise public transport services operating in close proximity of the site when they first arrive and to continue to do so such that travel by public transport becomes the 'norm'.

7.3.4. This measure is aimed at encouraging future residents to travel via sustainable means for localised trips. It is assumed that future residents commuting to central London will be travelling via sustainable means regardless of this measure, due to the impracticalities of travelling by private vehicle.

7.3.5. A credit note of this sum will allow for a variety of journeys during peak periods, such as:

- By Bus:

  x 26 bus journeys.

- By Tube:

  x 3 return trips to central London.
  x 8 return trips to Wembley Park / Sudbury Town.
  x 11 return trips to local stations.

7.3.6. This credit will be made available to future residents immediately upon occupation, to encourage and establish localised trips to be undertaken via sustainable modes as the 'norm'.

Residential travel pack

7.3.7. Upon occupation, every resident will be provided with a residential travel pack promoting sustainable modes of transport and key services provided through the Travel Plan. This will also contain information on the facilities within the development and nearby.

7.3.8. Primarily, the pack will contain details on cycling, walking and public transport routes to key local facilities, including current timetables for local bus and Underground services. It will also provide the details of the appointed TPC and invite future residents to raise specific transport-related matters with them.

7.3.9. It will, at a minimum, include the following:

Access initiatives

7.3.10. A high quality map of the local area identifying cycling, walking and public transport routes to and from the site and the locations of key local facilities accessible on foot. This will be updated on a yearly basis.

Journey planner tools

7.3.11. Additional sources of information such as TfL's Journey Planner website will also be provided, as well as an application form for one Oyster Card per dwelling with £40 credit to be funded by the developer discussed above.

Key services and facilities

7.3.12. Details of the key services and facilities such as the location of cycle parking and maintenance facilities and contact details for local taxi operators.

Health benefits associated with alternative modes of transport

7.3.13. Promotion of health benefits associated with walking and cycling on the communal notice boards.

London Cycling Campaign

7.3.14. Promotion of the LCC, a cyclist's organisation with local groups throughout London. Local LCC groups promote cycling locally, improve conditions for cyclists in their borough, organise leisure rides and social events and provide support for cyclists.

7.3.15. The benefits on offer to LCC members include discounts at bike shops, exclusive cycle theft insurance packages, free third party insurance for damage or injury up to the value of £1M, access to local LCC borough groups and free legal advice.

Cycling promotion

7.3.16. Promotion of cycling within the Borough, with hints and tips for all cyclists in the area, including cycle training, rides and routes, clubs as well as advice on where to buy or hire a bicycle.

Web-based working from home

7.3.17. Details of the use of web-based working from home to reduce the need to travel whilst providing benefits for the mobility impaired.

Car share clubs

7.3.18. Promotion of car sharing websites such as www.liftshare.com.

Car clubs

7.3.19. Promotion of contractor and an application for three years' free annual membership per dwelling upon first occupation, to be funded by the developer.

Community notice boards

7.3.20. Community notice boards providing travel and community information as well as events in the area will be placed in prominent locations within the site. Such events will provide future residents with:

- Free bike checks from bicycle mechanics.
- Overview of new route designs and plans and future consultation opportunities.
- Advice from experts about different cycling opportunities available in the borough.
- Cycle skills training (with different bikes to try out).

7.3.21. In addition, maps of the immediate local area will be displayed identifying locations of cycle parking, car club bays and public transport service access points.

7.3.22. The notice boards will also be used to inform residents of any new travel initiatives or events organised by the TPC.

8 MONITORING AND REVIEW

8.1 INTRODUCTION

8.1.1. A programme of monitoring and review will be implemented to generate information by which the success of the Travel Plan will be evaluated. This will help to establish whether the agreed objectives and targets are being met. Monitoring and review will be the responsibility of TPC.

8.2 MONITORING OF RESIDENTIAL UNITS

8.2.1. The TPC will arrange the initial travel survey to be undertaken for the development once a trigger point of 50% occupation of the residential units has been reached.

8.2.2. The travel survey will then be undertaken at the third and fifth year after the after the trigger point has been reached (50% occupation). All monitoring will be iTRACE and TRICS compliant so it can ultimately be incorporated into the TRICS database. The surveys will comprise of the following components:

- Questionnaire surveys of residents/ visitors undertaken.
- Pedestrian, cycle and vehicle counts at the access points into the site.
- A servicing survey will be undertaken.

8.2.3. Monitoring will continue on a rolling five year (3 and 5) basis if targets are not met within the initial monitoring period, unless otherwise agreed in writing with LBH.

8.3 REVIEW

8.3.1. The TPC will report the survey results to LBH within one month of each survey. The TPC and officers of LBH will then review the results and if appropriate, revise the target accordingly. The results of the travel survey and revised targets will be included in the subsequent revision of the Travel Plan.

8.4 ACTION PLAN

8.4.1. To enable specific actions to be monitored, an action plan must have a measurable output. **Table 8-1** sets out tasks, intended implementation dates and funding sources.

Table 8-1: Action plan

Action	Target date	Funding	Responsibility
Appointment of TPC	Prior to first occupation	Developer	Developer
Bus service improvements	Prior to first occupation	Developer	TfL
Oyster Card application form with £40 credit	Prior to occupation	Developer	Developer
Car club provision (minimum of 4 car club bays upon complete implementation)	Prior to first occupation	Developer	Developer
3 years free car club membership for residents	Prior to occupation	Developer	Developer
Implementation of community notice boards to promote travel specific information and benefits of sustainable travel	Prior to occupation	Developer	TPC
Implementation of Cycle Hub & Brompton / traditional bike hire	Upon completion of Block 4	To be agreed with LBH / TfL	Developer
Implementation of electric vehicle charging points	Prior to occupation	Developer	Developer
Provision of cycle maintenance facilities	Prior to occupation	Developer	Developer
Production of residential welcome pack including details of key initiatives	Distribution to every resident	Developer	Developer
Monitoring – TRICS compliant surveys to be undertaken upon 50% occupation and Year 1, 3 and 5 to monitor progress	Upon 50% occupation	Developer	TPC
Highway improvement works	Prior to first occupation	Developer	Developer / LBH

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Appendix D

DELIVERY AND SERVICING PLAN

Inland Homes Ltd

HILLINGDON GARDENS

Delivery and Servicing Plan

JULY 2020

PUBLIC

Inland Homes Ltd

HILLINGDON GARDENS

Delivery and Servicing Plan

TYPE OF DOCUMENT (VERSION) PUBLIC

PROJECT NO. 70057679

DATE: JULY 2020

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QUALITY CONTROL

Issue/revision	First issue	Revision 1	Revision 2	Revision 3
Remarks	Final draft	For issue	Final issue	GLA Issue
Date	September 2019	September 2019	October 2019	July 2020
Prepared by	Ben Smith	Ben Smith	Ben Smith	Ben Smith
Signature				
Checked by	Ben Smith	Ben Smith	Ben Smith	Ben Smith
Signature				
Authorised by	Tim Gabbitas	Tim Gabbitas	Tim Gabbitas	Tim Gabbitas
Signature				
Project number	70057679	70057679	70057679	70057679

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1 INTRODUCTION

1.1 COMMISSION

1.1.1. WSP has been commissioned by Inland Homes Ltd to produce this Delivery and Servicing Plan in support of the proposed development at the Former Master Brewer site, located in the London Borough of Hillingdon.

1.1.2. The site is located on Freezeland Way, to the northeast of the Hillingdon Circus junction, as shown in **Figure 1-1**. The site comprises 2.53 hectares of land and is currently a vacant brownfield site that was formerly occupied by the Master Brewer Motel and Public House, as well as associated buildings.

Figure 1-1: Site location

1.2 PROPOSALS SUMMARY

1.2.1. The proposed development description is as follows:

"Construction of a residential-led, mixed-use development comprising buildings of between 2 and 11 storeys containing 514 units (Use Class C3); flexible commercial units (Use Class B1/A1/A3/D1); associated car (164 spaces) and cycle parking spaces; refuse and bicycle stores; hard and soft landscaping including a new central space, greenspaces, new pedestrian links; biodiversity enhancement; associated highways infrastructure; plant; and other associated ancillary development."

1.2.2. A more detailed breakdown of the development proposals is detailed in **Table 1-1**.

Table 1-1: Proposed development schedule

Land Use	Relevant development quantum
Residential (C3)	514 units
Flexible retail (A1-A3) / community space (D1) / office (B1)	1,141m^2

1.3 REPORT PURPOSE

1.3.1. The purpose of this Delivery and Servicing Plan (DSP) is to inform the LBH of the intent of the applicant in managing service vehicle trips to and from the development, designed to minimise the impact of these goods vehicle trips on the surrounding public highway.

1.3.2. The remainder of the report is structured as follows:

- Chapter 2 reviews the relevant the planning policy and guidance in relation to deliveries and servicing.
- Chapter 3 presents the proposed servicing provision on the site including details of estate management and forecasts of servicing vehicle generation, based upon the Transport Assessment.
- Chapter 4 identifies the objectives of the Delivery and Servicing Plan.
- Chapter 5 presents the measures and initiatives to be employed to increase servicing efficiency for the Site.
- Chapter 6 presents the proposed methodology for monitoring and review.

2 PLANNING POLICY AND GUIDANCE

2.1 INTRODUCTION

2.1.1. The national and local transport policies relevant to this development are well documented and this section does not seek to replicate them. Instead, the key themes in the relevant national and local policies are summarised briefly in turn, and where relevant, policies which relate directly to the development are addressed.

2.2 NATIONAL POLICY

National Planning Policy Framework, 2019

2.2.1. The National Planning Policy Framework (NPPF) promotes the use of sustainable transport throughout the UK, safe road design, and the efficient and sustainable delivery of goods and supplies.

The Mayor's Transport Strategy, 2018

2.2.2. The Mayor's Transport Strategy considers all methods of freight delivery, including road, rail, pipeline, water, bicycles and air. The document highlights the importance of the London Freight Plan, DSPs, CLPs and FORS to encourage improved efficiency and provide a framework for incentivisation and regulation.

2.2.3. In particular, Proposal 16 states that:

"The Mayor, through TfL, and working with the boroughs and members of the Freight Forum, will improve the efficiency of freight and servicing trips on London's strategic transport network by:

- Identifying opportunities for moving freight on to the rail network where this will not impact on passenger services and where the benefits will be seen within London.
- Increasing the proportion of freight moved on London's waterways.
- Reviewing the potential benefits of a regional freight consolidation and distribution network and completing the network of construction consolidation centres in London."

Traffic Management Act, 2004

2.2.4. Part 2 of the Traffic Management Act sets out the responsibility of local authorities to manage traffic networks within their geographical area of responsibility. This includes efficient use of the network and the requirement to take measures to avoid contributing to traffic congestion. Part 5 outlines the responsibility of local authorities in Greater London to manage the strategic route network. This includes Transport for London's (TfL) role to manage certain areas of the Greater London route network.

2.3 REGIONAL POLICY

The London Plan, 2016

2.3.1. The London Plan, published in March 2016, is the principal planning document for London and addresses the key trends and challenges that London will be required to address up to 2031. It encourages more sustainable forms of transport and managing the use of London's roads to improve air quality and create healthier neighbourhoods.

2.3.2. Policy 6.1 commits the Mayor to working with partners to facilitate the effective distribution of freight, while minimising the overall impact on the transport network. This may involve working in conjunction with Transport for London's freight initiatives, such as the use of consolidation centres, the encouragement of night time deliveries, and the promotion of goods and waste transport by river.

2.3.3. Policy 6.3 addresses the capacity of London's transport network. It states that a DSP should be secured in line with the London Freight Plan and should be coordinated with Travel Plans in order to reduce and spread demand across London's transport network.

2.3.4. Policy 6.14 states that developments that generate high numbers of freight movements close to major transport routes should promote the uptake of the Fleet Operators Recognition Scheme, Construction Logistics Plans, DSPs and more innovative freight solutions, reflecting the positive experience of the Olympics and seeking opportunities to minimise congestion impacts and improve safety.

2.3.5. Paragraph 6.49 of the London Plan states that:

"London needs an efficient distribution network to service its people and businesses. The Mayor wants to encourage distribution and servicing in ways that minimise congestion and any adverse environmental impacts. The majority of movements will continue to be by road. This should be recognised and planned for, but the use of construction logistic plans and delivery and servicing plans may help ease congestion and/or encourage modal shift. Boroughs may wish to explore the possibilities of night time deliveries where this would not have unacceptable impacts on residents".

The draft New London Plan, 2019

2.3.6. The draft New London Plan is emerging policy for London and is a material consideration in planning decisions. The draft New London Plan echoes the sustainable freight promotion of the 2016 London Plan, and encourages developers to consider all reasonable endeavours to utilise non-road vehicle modes in the delivery of goods and supplies to sites.

2.3.7. Policy T7 of the draft New London Plan states:

- *"Development proposals should facilitate sustainable freight and servicing, including through the provision of adequate space for servicing and deliveries off-street. Construction Logistics Plans and Delivery and Servicing Plans will be required and should be developed in accordance with Transport for London guidance and in a way which reflects the scale and complexities of developments.*
- *Developments should be designed and managed so that deliveries can be received outside of peak hours and in the evening or night time. Appropriate facilities are required to minimise additional freight trips arising from missed deliveries and thus facilitate efficient online retailing.*
- *At large developments facilities to enable micro-consolidation should be provided, with management arrangements set out in Delivery and Servicing Plans."*

The London Low Emissions Zone, 2008

2.3.8. The Low Emissions Zone (LEZ) is a scheme that aims to improve air quality in the city by setting and enforcing new emissions standards for HGV's, large vans and minibuses, and deterring the use of the most polluting vehicles by freight operators. The London LEZ is a first for the UK and is one of the largest schemes of its type in the world. Cars and motorcycles are not affected.

2.3.9. The LEZ operates 24 hours a day, 7 days a week. A daily charge of £200 is applicable to lorries, buses and coaches, and a £100 charge applies to heavy vans and minibuses that do not meet the required standards.

2.3.10. The LEZ is enforced through fixed and mobile cameras, which read vehicle registration number plates within the LEZ and check them against a database of vehicles that meet the LEZ emissions standards, or are either exempt or registered for a 100% discount, or have paid the LEZ daily charge.

The London Freight Plan, 2007

2.3.11. The vision for sustainable freight distribution in London over the next five to ten years is for:

"…the safe, reliable and efficient movement of freight and servicing trips to, from, within, and, where appropriate, through London to support London's economy, in balance with the needs of other transport users, the environment and Londoners' quality of life".

2.3.12. The plan identifies FORS, DSPs, CLPs and the Freight Information Panel (FIP) as key projects for delivering freight more sustainably in London.

3 DELIVERY AND SERVICING PROPOSALS

3.1 RESIDENTIAL STRATEGY

3.1.1. Deliveries and waste collection associated with the residential units on the site will take place on street, as they do in residential areas across the majority of London.

3.1.2. Delivery vehicles will have access to the internal site road network, and will be able to load / unload on-street adjacent to the residential building access points.

3.1.3. The internal roads have been designed to accommodate service vehicles up to 12m, refuse vehicles and fire tender vehicles. It is not envisaged that any larger vehicles would require internal access.

3.1.4. Bulky goods deliveries, as well as takeaways and grocery deliveries will be taken to the front door where residents will meet and collect the items. Smaller non-perishable goods, such as Amazon deliveries, will be delivered to the concierge in Block 1, and the resident notified by text that their item has arrived and is available for collection. Residents will be notified of this strategy and when purchasing items online will advise couriers to deliver items to the concierge.

3.1.5. Residential waste collection will take place on-street from the internal site road network. Waste collection trucks will pull up adjacent to the bin stores for each residential block, from where waste will be trolleyed from the bin stores to the rear of the waste collection truck for loading.

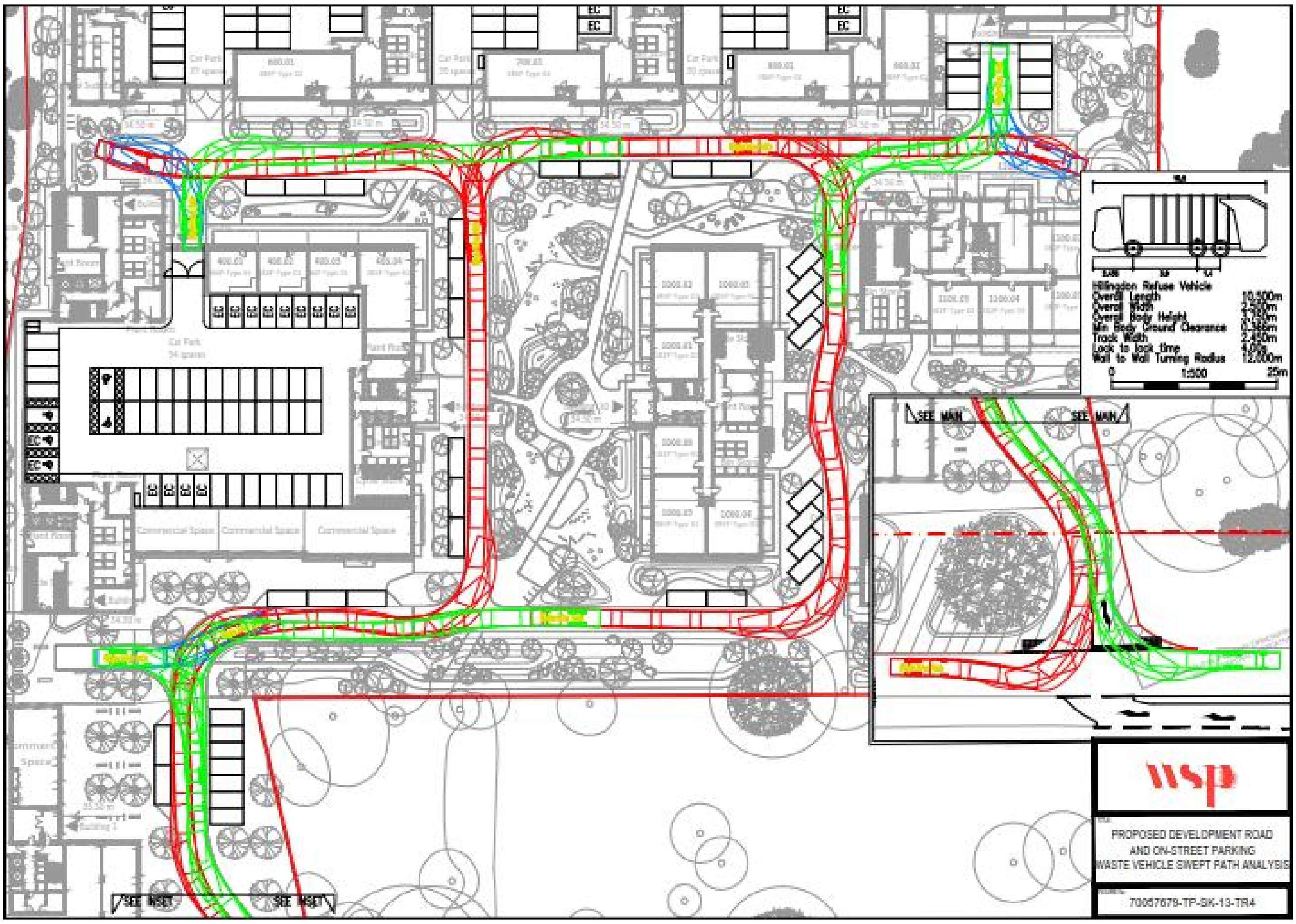
3.1.6. LBH will provide weekly non-recyclable and food waste collection services for residents living in purpose built flats, with separate collections of recycling undertaken on a fortnightly basis.

3.1.7. Access between loading vehicles and the site is level with a reasonable gradient for the transfer of goods and waste. There is step and kerb free access from the storage area to the collection point. Gradients on all transfer routes comply with design requirements. **Figure 3-1**, reprovided at **Appendix A**, illustrates the bin store locations in each block.

Figure 3-1: Residential waste collection – bin store locations

3.1.8. Vehicle tracking has been undertaken on the internal road network for a 10.5m rigid waste collection truck. This details the access routes for refuse collection vehicles. The vehicle tracking can be seen in **Figure 3-2** and **Appendix A**.

Figure 3-2: Residential waste collection with LBH refuse vehicle swept path analysis



3.1.9. The commercial office units would be serviced in the same way as the residential dwellings.

3.2 RETAIL STRATEGY

3.2.1. A dedicated servicing area will be provided for the retail units in Blocks 1 and 4. This will be situated to the rear of Block 1, and be able to accommodate one 10m rigid truck.

3.2.2. All deliveries are to be booked in with on-site management to ensure that delivery vehicles can be accommodated through the allocation of time slots for each delivery.

3.2.3. The bay is adequately sized to accommodate 10m rigid vehicles with space to load and unload.

3.3 ON-SITE MANAGEMENT OF COMMERCIAL SERVICING

3.3.1. In order to enforce the servicing strategy, the following measures will be introduced by the security / dock staff:

- As part of the appointment of all contracts at the development that would involve deliveries or collections, the company being contracted will be made aware of the delivery access restrictions and be asked to accept these restrictions in writing. It is envisaged that all delivery vehicles, as far as reasonably possible, will be approved and contracted suppliers with the drivers' names and vehicle registrations of suppliers held by the development security staff.

- Any other occasional delivery companies who do not normally deliver to the development will also be provided with delivery restrictions by on-site management and directed to the appropriate servicing areas.
- The loading bay to the rear of Building 1 is to be used for retail servicing only.
- If a driver does not comply with the delivery access restrictions (as witnessed by the on-site management or reported via local residents), the supplier will be informed of the vehicle registration / driver not complying with the contracted conditions. Non-compliance with the delivery restrictions will then be used as a deciding factor in the appointment of contracts at the proposed development.

3.4 PREDICTED DELIVERY/SERVICING MOVEMENTS

3.4.1. The residential element of the development is forecast to generate a number of servicing trips, primarily comprising deliveries of goods and food (takeaways).

3.4.2. No appropriate sites were found on the TRICS database, and as such, the residential servicing trip generation is based on the following two sites which are a comprehensive resource that is representative of the recent trend for increased residential servicing activity:

- Imperial Wharf (1,745 Dwellings) – 2014 survey
- Bow Quarter (773 Dwellings) – 2016 survey

3.4.3. Whilst the number of dwellings at these developments is higher than is proposed at Hillingdon Gardens, it is worth noting that this will have a negligible impact on the servicing trip rate per dwelling. These surveys identified a daily servicing trip rate of 0.170 deliveries per dwelling at Imperial Wharf and 0.122 deliveries per dwelling at Bow Quarter.

3.4.4. The weighted average trip rate for the daily and peak hours is shown in **Table 3-1**, together with the forecast trip generation for the 514 residential units at Hillingdon Gardens. Residential deliveries typically take place outside the morning peak hour, and occur from mid-morning onwards, including into the afternoon and evening.

Table 3-1: Residential servicing demand

Mode	LGVs	HGVs	Total
AM peak (08:00-09:00)	2	1	3
Development peak (10:00-11:00)	5	2	7
PM peak (17:00-18:00)	4	0	4
Daily	**59**	**5**	**64**

Commercial

3.4.5. Though the commercial use is still flexible, it has been assumed on a worst-case basis that the area will take the form of A3 food and beverage units, as these will generate a higher servicing demand than the other potential uses. The servicing demand associated with these uses has been extracted from TRICS. Surveys at three restaurants in outer London have been utilised to generate the servicing trip rates associated with the proposed commercial uses. The resultant servicing demand for the 1,141m^2 of commercial floorspace in Blocks 1 and 4 is shown in **Table 3-2**, whilst the trip rates are contained in **Appendix K**.

Table 3-2: Commercial servicing demand

Mode	LGVs	HGVs	Total
AM peak (08:00-09:00)	0	1	1
Development peak (11:00-12:00)	2	2	4
PM peak (17:00-18:00)	2	0	2
Daily	**16**	**6**	**22**

Combined

3.4.6. The combined servicing demand for both the residential and commercial uses is demonstrated in **Table 3-3**.

Table 3-3: Overall servicing demand

Mode	LGVs	HGVs	Total
AM peak (08:00-09:00)	2	2	4
Development peak (11:00-12:00)	7	3	10
PM peak (17:00-18:00)	6	0	6
Daily	**75**	**11**	**86**

4 DELIVERY AND SERVICING PLAN OBJECTIVES

4.1 OBJECTIVES

4.1.1. Delivery and Servicing Plans developed through the planning process seek to support sustainable development. They are drafted within the context of the guidance provided within the London Freight Plan and TfL's best practice guidance.

4.1.2. This Delivery and Servicing Plan will therefore seek to achieve the following objectives:

- Demonstrate that goods and services 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.
- Improve the reliability of deliveries to the site.
- Reduce the operating costs of building occupants and freight companies.
- Reduce the impact of freight activity on local residents and the environment.

5 DELIVERY AND SERVICING MANAGEMENT MEASURES

5.1 INTRODUCTION

5.1.1. This section outlines the overarching measures and initiatives included within the Delivery and Servicing Plan which are applicable to the development site.

5.1.2. This DSP will specifically aim to ensure that servicing of the development can be carried out efficiently, without creating any negative impacts upon the local highway network, residents and commercial occupiers within and surrounding the site, and the environment.

5.1.3. In accordance with TfL's best practice guidance contained within their document entitled 'Managing Freight Effectively: Delivery and Servicing Plans', the proposed management measures and initiatives have been grouped into the following areas:

- Design
- Procurement strategy
- Operational efficiency
- Waste management
- Road trip reduction

5.1.4. The London Freight Plan recognises that good design can minimise disturbance for residents at or travelling to the site and the impact of servicing upon the surrounding highway network. Design related measures implemented as part of the development proposals are set out in turn below.

5.2 MANAGING DELIVERIES

Servicing facilities

5.2.1. The proposed development has been designed to ensure that all servicing activities are undertaken within the site boundary to ensure that the surrounding highway network is unaffected by the operation of the site.

Risk assessment of servicing areas

5.2.2. A risk assessment would be normally undertaken by suitably trained site management staff prior to use. This assessment will examine the following issues:

- Adequate manoeuvring space for the vehicles.
- Interaction with pedestrians.
- Adequate space for unloading.
- Level route from vehicle to destination.
- Interaction with vehicles.
- Visibility of management staff.

Security measures

5.2.3. Security measures will be provided within the development site. This includes:

- The main vehicular access to the car parks will be controlled.
- Vehicle movements associated with the loading bay will be monitored and reviewed by the security office, or by personnel to ensure that it is being used safely and at appropriate times.

Accommodating special deliveries

5.2.4. Any special deliveries to the site, such as plant maintenance vehicles will need to be pre-arranged. The delivery time and duration will be negotiated with the site management office to minimise the impact upon the routine daily servicing requirements of the development. Out of peak deliveries will be encouraged for such deliveries where possible.

5.3 PROCUREMENT STRATEGY

5.3.1. Procurement processes should demonstrate an awareness of all vehicle activity associated with the site, its impacts and appropriate measures to reduce it. This will be undertaken by site management.

Freight Operator Recognition Scheme

5.3.2. Commercial occupiers will be encouraged to contract suppliers registered with a best practice scheme, such as the Freight Operator Recognition Scheme (FORS). Full details of the benefits associated with FORS are detailed earlier within this document.

Consolidation of suppliers

5.3.3. Occupiers of the site will be encouraged to co-ordinate deliveries in instances where common suppliers are used.

5.4 OPERATIONAL EFFICIENCY

Delivery restrictions and enforcement

5.4.1. Peak hour deliveries will be discouraged through consultation with occupiers of the buildings by the site managers. The operation of the development will benefit from spreading deliveries throughout the day using a computer/web based vehicle booking system.

Promotion of freight information portal

5.4.2. The Freight Information Portal will be promoted by the site based management agent to raise awareness of this resource amongst the workplace occupiers within the site and encourage the adoption of good practice servicing and delivery strategies. The corporate and social responsibility benefits associated with using suppliers adopting sustainable freight and servicing practices will also be promoted to occupiers.

Communication of delivery procedures

5.4.3. The delivery procedures in operation on the site will be communicated to staff upon occupation. The occupiers will be responsible for informing their suppliers of any delivery restrictions and communicating the booking/ management strategy.

Management strategy

5.4.4. A workplace vehicle booking/ management system will be implemented on the site to manage and schedule vehicle activity at the servicing area. The system will be managed by the site based management agent

5.4.5. Deliveries to the development will be allocated into 15 minute slots, with a maximum dwell time of 15 minutes, unless otherwise negotiated with the site management office. To book a delivery slot the supplier will contact the management agent in advance of their arrival to the site.

Out of hours deliveries

5.4.6. Few deliveries would be expected during the very early morning and later evening periods; however, if any should be required a noise abatement strategy will operate, whereby services vehicles would be instructed by the management office to turn off their engines once parked, for the duration of servicing activity.

Staff training requirements and responsibilities

5.4.7. The appointed site based management agent will be responsible for providing funding and time resources for all of their site-based staff to receive appropriate training relating to the processes and procedures in operation on the development site. On-going training requirements will be identified through annual Personal Development Reviews (or equivalent internal review process).

5.5 WASTE MANAGEMENT

Waste reduction, storage and removal measures

5.5.1. Guidance contained within the London Freight Plan identifies that developments should provide sufficient facilities for storage and collection of segregated waste.

5.5.2. The proposed development will provide segregated waste storage, segregated into general waste and dry comingled recyclables. All waste will be stored within the respective residential block cores.

Refuse collection procedures

5.5.3. Refuse collection will be undertaken outside of the peak hours where possible, with the specific collection times being arranged with the local authority or private waste contractor to minimise impacts upon operation of the site.

5.6 ROAD TRIP REDUCTION

Encouraging deliveries by sustainable modes

5.6.1. Measures which will be recommended to suppliers including choosing the most appropriate delivery mode. For example, using smaller vehicles or motorcycles where possible; switching to hybrid and / or electric vehicles; and seeking to ensure safe, efficient and considerate operations, such as switching off engines when making deliveries.

5.6.2. The London Low Emission Zone will also require suppliers operating delivery vehicles which do not meet emission standards, to pay a daily charge for journeys within London.

5.7 ENFORCEMENT

5.7.1. The contents of this Delivery and Servicing Plan have been prepared in order to inform LBH of the developer's intent for the planning application for this site. Therefore, it must be complied with unless otherwise agreed in writing with LBH.

6 MONITORING AND REVIEW

6.1 MONITORING

6.1.1. A programme of monitoring and review will be implemented for a period of time to generate information by which the success of the Delivery and Servicing Plan can be evaluated against the objectives set out within **Section 4**.

6.1.2. Monitoring and review of deliveries to the site will be the responsibility of the logistics manager (or appointed consultant).

6.1.3. A delivery survey will be undertaken a maximum of 6 months after at least 50% of the commercial floor area is occupied. The delivery surveys will be undertaken in accordance with the standard TRICS Delivery Survey Methodology or similar. The delivery surveys will be undertaken simultaneously with the travel surveys associated with the implementation of the Travel Plan, where timescales permit.

6.1.4. The logistics manager (or appointed consultant) will arrange further delivery surveys to be undertaken the third and fifth year after the initial survey. Monitoring reports will be prepared to summarise the result of each survey for submission to the local planning authority.

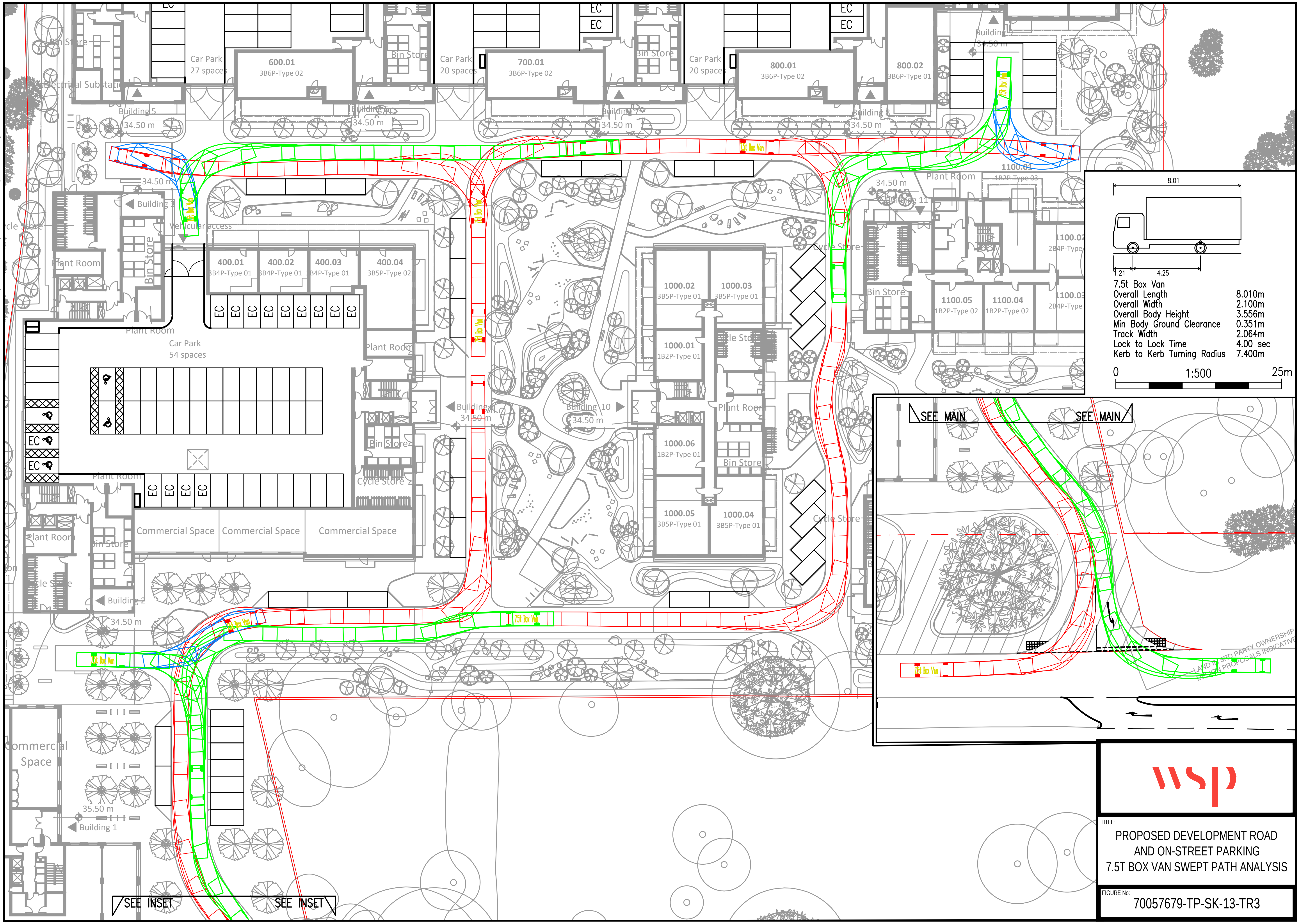
6.2 REVIEW

6.2.1. The logistics manager (or appointed consultant) will report the survey results to the local planning authority within one month of the survey being undertaken. The results of the delivery survey will then be reviewed in consultation with the local planning authority.

6.2.2. This process will provide the opportunity for current delivery operations and procedures on the site to be reviewed and new management measures to be implemented, if necessary, to achieve the objectives set out within this DSP.

Appendix A

SWEPT PATH ANALYSIS



wsp

TITLE:

PROPOSED DEVELOPMENT ROAD AND ON-STREET PARKING 7.5T BOX VAN SWEPT PATH ANALYSIS

FIGURE No:

70057679-TP-SK-13-TR3

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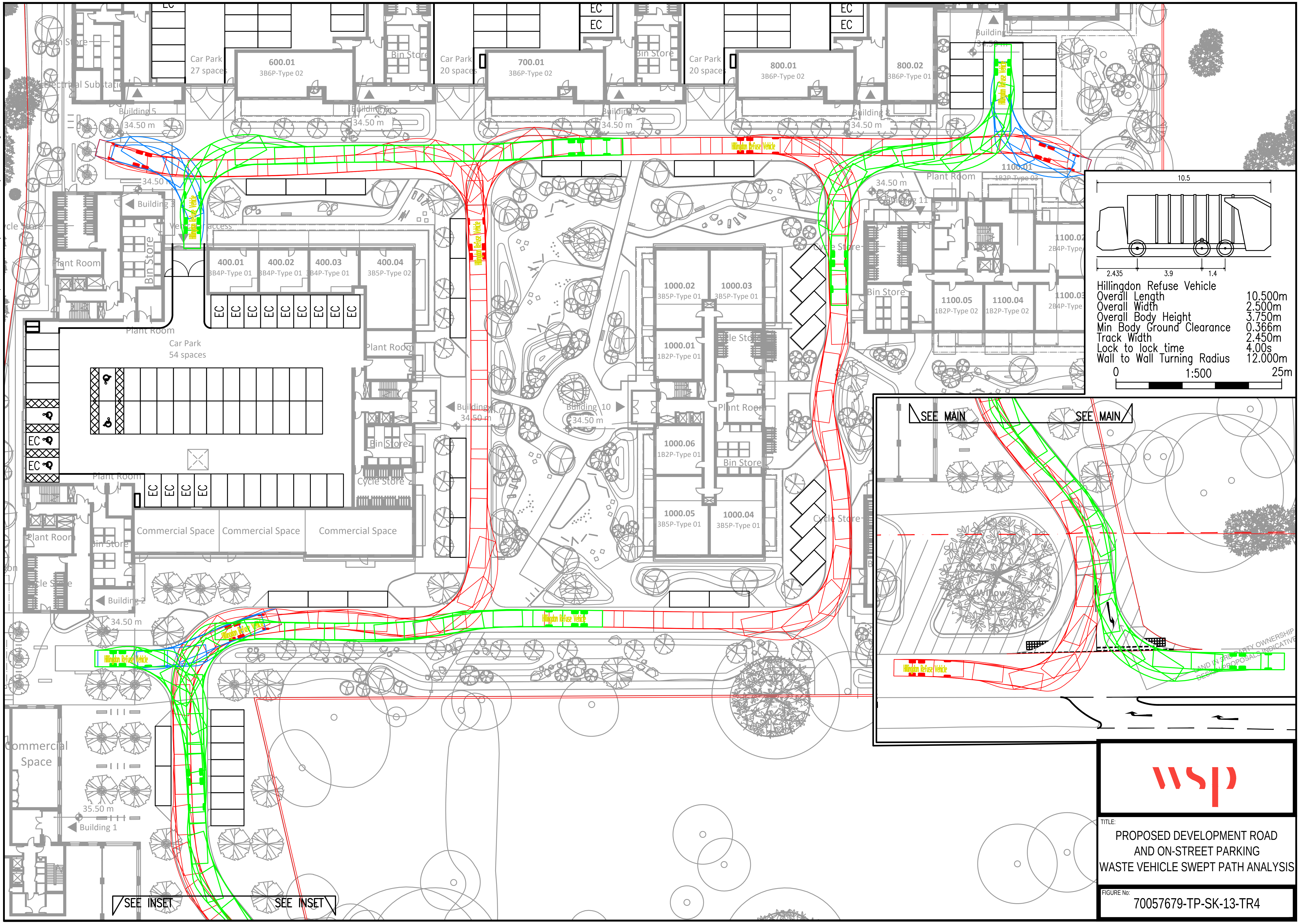

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TITLE:

PROPOSED DEVELOPMENT ROAD AND ON-STREET PARKING WASTE VEHICLE SWEPT PATH ANALYSIS

FIGURE No:

70057679-TP-SK-13-TR4

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Appendix E

CAR PARKING MANAGEMENT PLAN

Inland Homes Ltd

HILLINGDON GARDENS

Car Parking Management Plan

JULY 2020

PUBLIC

Inland Homes Ltd

HILLINGDON GARDENS

Car Parking Management Plan

TYPE OF DOCUMENT (VERSION) PUBLIC

PROJECT NO. 70057679

DATE: JULY 2020

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QUALITY CONTROL

Issue/revision	First issue	Revision 1	Revision 2	Revision 3
Remarks	Final draft	For issue	Final issue	GLA Issue
Date	September 2019	September 2019	October 2019	July 2020
Prepared by	Ben Smith	Ben Smith	Ben Smith	Ben Smith
Signature	Ben Smith	Ben Smith	Ben Smith	Ben Smith
Checked by	Ben Smith	Ben Smith	Ben Smith	Ben Smith
Signature	Ben Smith	Ben Smith	Ben Smith	Ben Smith
Authorised by	Tim Gabbitas	Tim Gabbitas	Tim Gabbitas	Tim Gabbitas
Signature				
Project number	70057679	70057679	70057679	70057679

CONTENTS

TABLES

FIGURES

1 INTRODUCTION

1.1 COMMISSION

1.1.1. WSP has been commissioned by Inland Homes Ltd to produce this Travel Plan in support of the proposed development at the Former Master Brewer site, located in the London Borough of Hillingdon.

1.1.2. The site is located on Freezeland Way, to the northeast of the Hillingdon Circus junction, as shown in **Figure 1-1**. The site comprises 2.53 hectares of land and is currently a vacant brownfield site that was formerly occupied by the Master Brewer Motel and Public House, as well as associated buildings.

Figure 1-1: Site location

1.2 PROPOSALS SUMMARY

1.2.1. The proposed development description is as follows:

"Construction of a residential-led, mixed-use development comprising buildings of between 2 and 11 storeys containing 514 units (Use Class C3); flexible commercial units (Use Class B1/A1/A3/D1); associated car (164 spaces) and cycle parking spaces; refuse and bicycle stores; hard and soft landscaping including a new central space, greenspaces, new pedestrian links; biodiversity enhancement; associated highways infrastructure; plant; and other associated ancillary development."

1.2.2. A more detailed breakdown of the development proposals is detailed in **Table 1-1**.

Table 1-1: Proposed development schedule

Land Use	Relevant development quantum
Residential (C3)	514 units
Flexible retail (A1-A3) / community space (D1) / office (B1)	1,141m^2

1.3 REPORT PURPOSE AND STRUCTURE

1.3.1. This Car Parking Management Plan (CPMP) sets out the long-term strategy for allocating, managing and monitoring on-site parking, including monitoring on-street parking in the areas surrounding the site.

1.3.2. This parking management plan will provide details on:

- How parking spaces will be allocated.
- How secure cycle facilities will be managed.
- How the use of parking areas and spaces, and issues arising from their use, will be monitored and addressed.
- How the risk of obstructive parking will be reduced.
- How delivery and servicing activities will be conducted on site.

1.3.3. The report is structured as follows:

- Section 2: Parking provision
- Section 3: Management strategy

2 PARKING PROVISION

2.1 CAR PARKING PROVISION

2.1.1. In order for the development to balance the need to provide sufficient car parking to meet demand whilst also promoting sustainable travel, on-site car parking provision for the development will be provided at a ratio of 0.30 spaces per dwelling, equating to 154 parking spaces. This is in line with maximum car parking standards as set out in the draft New London Plan (2019).

2.1.2. The car parking ratio will vary across different unit types, with larger family units having a higher parking ratio and the smallest units being car-free. The allocation of residential car parking is detailed in **Table 2-1**.

Table 2-1: Residential car parking provision allocation

Dwelling Size	No. Units	Parking Spaces	Ratio (Spaces/Unit)
1 bed	221 units	-	Car-free
2 bed	215 units	76	0.35
3 bed	78 units	78	1
Total	**514 units**	**154**	**0.3**

2.1.3. A detailed breakdown of site-wide car parking provision is detailed in **Table 2-2**.

Table 2-2: Breakdown of site-wide car parking provision

Location	Standard bays	Blue Badge bays	Total bays
Podium 2/3/4	49	5	54
Podium 5/6	17	3	20
Podium 6/7	17	4	20
Podium 7/8	24	4	27
Podium subtotal	***105***	***16***	***121***
On-street residential	33	0	33
On-street visitor	6	0	6
On-street car club	4	0	4
On-street subtotal	***43***	***0***	***43***
Total	**148**	**16**	**164**

2.1.4. 13 motorcycle parking spaces will also be provided for residential uses.

2.1.5. A report on residential parking in new developments was produced by TfL in 2012 and examines the relationship between parking, car ownership and car use amongst residents of new developments in Greater London. Key findings from the report were:

- There is a strong relationship between public transport and household car ownership – as public transport accessibility increases, car ownership in new developments falls.
- The more parking provided by a new development, the more attractive it becomes to car owning households: people choose housing that meets their needs.
- The more parking provided by a new development, the higher the household car ownership level. Where there is more parking, there are more cars. This was true for all groups and in all areas studied.
- Developments with more parking produce more car travel. People who own cars use them: driving their cars frequently at all times of day, including the busiest peak periods.
- The level of car parking provided in new developments therefore has a substantial impact on the level of car use generated by that development.

2.1.6. The report demonstrates that where parking is not made available for prospective residents of the proposed development, it will attract people who do not require a car. Indeed, this will in turn mean that car travel will subsequently be lower at the development. In addition to this, a number of measures such as a financial contribution towards improved local bus services, the provision of on-site car club bays, and an on-site Cycle Hub with maintenance/repair facilities and cycle hire, are proposed within the development to encourage sustainable travel.

2.1.7. Based on the sustainable measures to be implemented, and GLA and TfL aspirations, a provision of 0.3 spaces per dwelling is considered appropriate for this development.

2.1.8. In accordance with draft New London Plan standards, 20% of the spaces will be for electric vehicles ('active' provision) with the remaining spaces all having passive provision for electric vehicles in the future. Accessible parking will exceed the draft New London Plan standards, with provision for 20 accessible spaces. These bays will all be provided at ground level in close proximity to the accessible units. Demand for accessible bays will be monitored and standard bays would be converted if required.

Visitor and commercial car parking

2.1.9. The retail units are intended to be used predominantly by local residents with trips made on foot. As such, no public parking will be provided for retail uses. A small number of parking bays (6) will be allocated for residents' visitors.

Car club

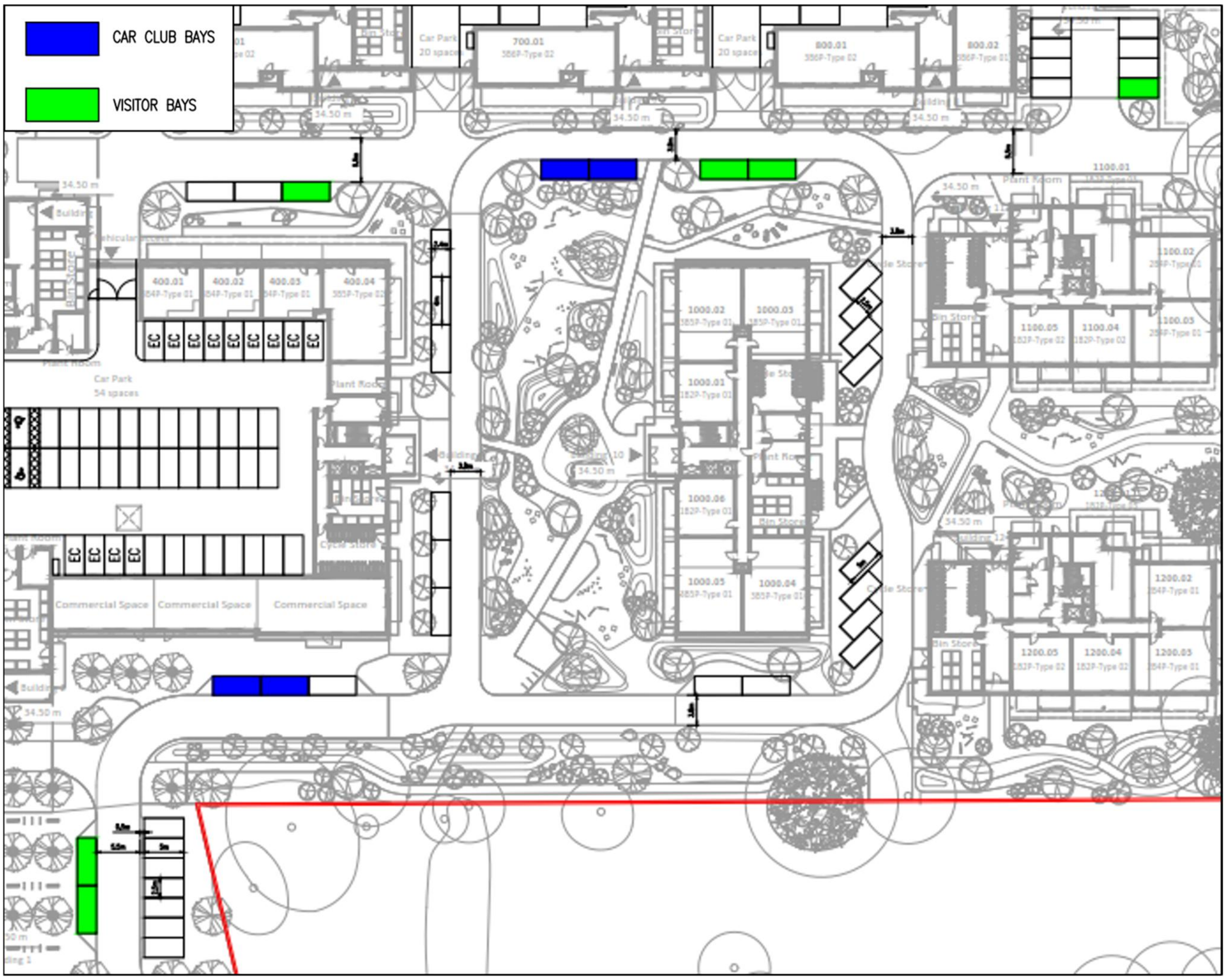
2.1.10. Up to 4 car club bays will also be provided at the development, with 3 years' free membership provided to each household upon first occupation. This will provide residents who don't own a car with an opportunity to use one when they require. The car club cars will also be available for use by the wider local community.

2.1.11. Initial discussions with car club operators ZipCar and Enterprise suggest that the development at full build out could support 4 car club cars.

2.1.12. It is proposed that up to four car club cars are provided within the site to support the development. It is envisaged that one car will be provided upon initial occupancy, with usage monitored and reported prior to implementation of a second vehicle. ZipCar have a threshold of 45% utilisation before they look to increase the number of car club vehicles on site. Enterprise adopts a lower threshold of approximately 30% utilisation. This monitoring exercise would help to inform the Travel Plan targets and also the number of spaces to be provided for future phases and help ensure that the number of car club vehicles on site meets the demand.

2.1.13. The location of the car club bays will maximise exposure and ensures the bays are conveniently located regardless of which block future residents reside in. 2 bays will be located close to the site entrance, maximising visibility for both those residing within the development and others in the wider local community. 2 further bays will be provided close to the centre of the development, also in a highly visible and accessible location. **Figure 2-1** shows the location of car club and visitor bays.

Figure 2-1: Car club and visitor bay locations



2.1.14. The chosen car club provider will be marketed at the development through:

- Bespoke marketing material.
- Advertisement within the development.
- Car club ambassadors.

2.1.15. It is recognised that the best time to influence travel behaviour is when residents first move into or utilise a new development. The car club will therefore be in place and operational prior to occupation of the first dwelling. New residents will be provided with 3 years' free annual membership upon first occupation that will be funded by the developer.

2.1.16. The benefits of the car clubs will be highlighted to future residents, including:

- Cheaper – owning a car has the added cost of insurance, tax, service and maintenance and depreciation.
- Greener – generally those involved in the scheme choose walking, cycling and public transport as their mode of travel, using the car club only when it is the best option.
- Convenient – you can book with a minute's notice and be on your way in a clean, well looked after car, which you use only for as long as you need it.

2.2 CYCLE PARKING PROVISION

2.2.1. Cycle parking is to be provided in accordance with the draft New London Plan. For the residential units a total of 918 cycle parking spaces will be provided. These will be situated in secure, covered locations and be made accessible in order to maximise use. The provision will take the form of 95% two-tier 'Variohub' and 5% accessible Sheffield Stands, as per the London Cycle Design Standards (LCDS). The cycle parking will be provided within locked, sheltered enclosures, with sliding gates provided to enable residents to access their bicycle easily. The parking will be provided at ground level within each individual building and the quantum within each store will correspond directly with the requirements relating to the specific blocks of flats that the store serves.

2.2.2. The cycle parking provision will meet the minimum standards set out within the draft New London Plan that requires provision of one cycle space per 1 bedroom unit and 2 cycle spaces per 2+ bedroom unit. Its implementation considers:

- Layout – all parking is conveniently located and laid out to ensure that users can comfortably manoeuver in and out of cycle stands.
- Signage – signage will be provided on and near the site directing users to cycle parking facilities.
- Attractive – cycle parking facilities will be maintained to a good condition to ensure it is inviting to use.
- Secure – to be located in areas where they have high levels of passive surveillance and where this is not possible, security lighting will be implemented to further reduce the risk of bike theft.
- Covered – future residents will benefit from cycle parking that is sheltered and protected from the elements.
- Type of stand – Sheffield / Camden type stands will be used. Front wheel locking stands will not be considered.

2.2.3. A small element of cycle parking will also be provided for the commercial / retail units. This again will be provided in line with draft New London Plan requirements. Short-stay cycle parking will be incorporated into the public realm, strategically located in order to increase exposure.

2.2.4. The cycling related measures will contribute towards the objectives of LBH's 'Go Cycle Programme', which is designed to encourage more people to cycle and improve safety while providing better streets and places for everyone.

2.2.5. **Table 2-3** shows the site-wide cycle parking provision to be provided for each use. It has been assumed that the flexible commercial use will take the form of A2-A5 F&B retail.

Table 2-3: Cycle parking provision

Land Use	Draft London Plan standards for long-stay parking	Draft London Plan standards for short-stay parking	Relevant development quantum	Long-stay cycle parking provision	Short-stay cycle parking provision
Residential (C3)	1.5 spaces per 2 person 1 bed	1 space per 40 units	221	332	13
	2 spaces per 2+ bed		293	586	
Flexible retail (A3)	1 space per 175m^2	1 space per 40m^2	1,141m^2	7	29
Total				**926**	**45**

2.2.6. **Table 2-4** provides a breakdown of the long-stay residential cycle parking provision within each block. All long-stay commercial cycle parking will be situated within the Cycle Hub, in block 4.

Table 2-4: Long-stay residential cycle parking breakdown by block

Block	1 bed units	2+ bed units	Total units	Provision
Building 1	34	27	61	105
Building 2	23	15	38	65
Building 3	3	32	35	69
Building 4	5	40	45	88
Building 5	41	23	64	108
Building 6	23	22	45	79
Building 7	23	22	45	79
Building 8	23	23	46	81
Building 9	0	15	15	30
Building 10	12	38	50	94
Building 11	17	18	35	62
Building 12	17	18	35	62
Total	**221**	**293**	**514**	**918**

2.2.7. The long-stay residential cycle parking will be provided in line with London Cycle Design Standards, with 95% of spaces provided as two-tier stands, and the remaining 5% taking the form of accessible Sheffield stand spaces.

2.2.8. The long-stay cycle parking and associated lockers, showers and changing facilities for staff are provided within the 'Cycle Hub', situated in Block 4. Short-stay cycle parking is situated within the public realm. The cycle parking locations are shown in **Figure 2-2**.

Figure 2-2: Cycle parking locations

3 MANAGEMENT STRATEGY

3.1 PARKING MANAGEMENT

Resident Permit Parking Scheme

3.1.1. A Resident Permit Parking Scheme (RPPS) will operate and be enforced within the site through appropriate signage, road markings and patrolling. Residents will be able to purchase the right to park within the designated parking bays subject to availability. Each parking zone shall have a specific allocation of parking and residents will only be allowed to purchase a permit for the parking provision allocated to the respective residential parking zone.

3.1.2. Civil Enforcement Officers (CEOs) will actively patrol the site to monitor on-street parking operations and move drivers on or issue Penalty Charge Notices (PCNs) if required. This will be enforced by an on-site management team.

3.1.3. The majority of on-site parking will be provided in off-street car parks. Off-street parking operations will be monitored and managed by the same on-site management team, with the use of vehicle clamps to aid enforcement as required. Off-street car parks will be accessible by way of a secure gate with residents granted access by way of a security key fob.

Parking allocation

3.1.4. It is proposed that a certain number of spaces would be allocated to each of the unit sizes, with a higher proportion of 3 bedroom units allocated spaces and a lower proportion of 2 bedroom units allocated spaces. 1-bedroom units would be car-free. **Table 3-1** details the indicative parking space allocation for the current accommodation schedule.

Table 3-1: Residential parking allocation

Dwelling Size	No. Units	Parking Spaces	Ratio (Spaces/Unit)
1 bed	221 units	-	Car-free
2 bed	215 units	76	0.35
3 bed	78 units	78	1
Total	**514 units**	**154**	**0.3**

3.1.5. The residents' spaces will be leased, not sold, such as they can be easily reallocated for future residents. Residents will apply to the site management team and will be allocated a space within the car park. This arrangement will be advised to occupiers prior to purchase / moving in.

3.1.6. The allocation of spaces would be made on a first-come, first-served basis. Once all the parking spaces allocated to a particular size of unit are leased, any subsequent prospective buyers for units of the same size would be told that they would not be able to lease a parking space on the site.

3.1.7. Access to the secure car parks within the site will be controlled using fobs that will only be issued to residents who have been allocated parking bays in the car park.

3.1.1. In order to ensure all leased parking spaces located on the site are being utilised and are not being left vacant, individual parking spaces in the secure car parks will be allocated to a specific residential unit and space usage will be regularly monitored by the on-site facilities management team.

Visitor parking

3.1.2. Of the on-street parking spaces, 6 will be for use by visitors to the development. Each resident will have a visitor permit that they can be provided to a visitor upon arrival at concierge to validate the parking. These will be available for visitors to use during those times when parking in the CPZ is restricted.

Provision and management of on-site cycle parking

3.1.3. Cycle parking provision will adhere to the standards set out within the draft New London Plan and its design ensures that cycle parking is located in areas that are both convenient and secure. The final development proposals consist of:

- Long stay cycle parking provision for residents will be covered and secure, located within each of the residential building blocks.
- Short stay cycle parking provision for visitors will be located in areas with high levels of passive surveillance for security reasons.

3.1.4. The Travel Plan coordinator will undertake a count of cycle parking usage at the time of the Travel Plan surveys to understand existing use and establish whether there is a need for an increase in provision. If the survey results indicate there is an insufficient number of cycle parking spaces on site then this will be reflected in the action plan of the Travel Plan monitoring reports.

3.2 DISABLED PARKING BAYS

3.2.1. Sixteen Blue Badge parking bays will be provided as part of the proposed development. Each of these will be associated with the residential use, located within the podium car parks. Draft London Plan policy stipulates that 16 Blue Badge bays would be required for the residential uses (equating to 3% of the number of units), meaning that the proposed development is providing in line with the required amount. These bays will be located next to the entrance to each core to assist with accessibility.

3.2.2. Residents will inform the management company should they require the use of a disabled space. The management company will monitor the demand for disabled car parking spaces through a record of those tenants that are Blue Badge holders.

3.2.3. Spaces which are restricted to use by Blue Badge holders only will be identified through the introduction of appropriate signage. The introduction and removal of signage restricting the use of bays to Blue Badge holders only will be managed to reflect the demand for those spaces. The management company will ensure that the number of spaces restricted to use by Blue Badge holders only matches or exceeds the number of dwellings with tenants that are registered Blue Badge holders at all times.

3.3 ELECTRIC VEHICLE CHARGING

3.3.1. To encourage sustainable travel, electric vehicle charging points will be provided in line with the draft New London Plan. The draft New London Plan demands that 20% of residential parking spaces across the development have electric vehicle charging points, with the remaining bays featuring passive provision for future conversion into electric charging bays. It is proposed as part of this development that 20% of bays have electric vehicle charging points, and the remaining 80% have capability for future conversion.

3.3.2. These proposals ensure that:

- All electric vehicle parking spaces are clearly signed and located in prominent, convenient and accessible locations in the car parks e.g. close to the entrance of facilities.
- They meet the appropriate technical standards for the type of development.
- A full cabling network will be installed in the car parking area to support all active and passive charging points (32 Amp rated to ensure flexibility).
- The default socket type to install at 'active' charge points will be Type 2 IEC62196-2 connector.
- The car club parking spaces will be prioritised for the provision of Electric Vehicle Charging points, especially with regard to the provision of passive charging infrastructure that would cover all car club parking spaces.
- There is a five metre level surface at the end of the ramp to allow for vehicles and pedestrian visibility.

3.3.3. **Table 3-2** sets out the technical standards that will be used for the electric vehicle charging points for the development.

Table 3-2: Electric vehicle charging points technical standards

Land use	Voltage (V)	Current (amps)	Nominal charge power (kW)
Residential	230	13-16, single phase	3

3.4 MONITORING OF ON-STREET PARKING

3.4.1. On-street parking demand in areas surrounding the site is managed by a Controlled Parking Zone (CPZ).

3.4.2. Parking on the north side of the eastbound carriageway of Freezeland Way is only available to business permit holders or pay and display visitors between Monday to Saturday, 8am to 6:30pm, whilst the south side of the eastbound carriageway is only available to resident permit holders during the same hours. The westbound frontage road of Freezeland Way is also resident permit holders only from Monday to Saturday, 8am to 6:30pm.

3.4.3. The residential area to the south of the side (Granville Road, Victoria Avenue etc.) is also monitored by a CPZ, with permit holder parking only from Monday to Friday, 9am to 5pm. This CPZ is also in place along Hercies Road, as well as Auriol Drive and Pastures Mead.

3.4.4. To the north of the site, single yellow lines run along both sides of the street on Halford Road, Swakeleys Drive and other surrounding roads. These prevent any stopping between 8am and 8pm, Monday to Saturday.

3.4.5. On-street parking in the surrounding area will be monitored by way of car parking beat surveys carried out before occupation of the first dwelling and would need to continue up to and beyond full build-out and occupation of the site. This will examine whether parking stress levels have increased following completion of the development. The frequency of the surveys will be agreed with LBH.

3.4.6. Survey specifications will be agreed with LBH prior to being commissioned, but it is envisaged the area will include:

- Both sides of Freezeland Way, including the Freezeland Way frontage road.
- Frontage road parking along both sides of Long Lane between Hillingdon Circus and Granville Road.
- Hercies Road between Western Avenue and Pastures Mead.
- Halford Road, Swakeleys Drive, The Chase, Bridge Way and Turnstone Close.
- Granville Road.

3.4.7. The survey extent is shown in **Figure 3-1**.

Figure 3-1: On-street parking survey scope

3.4.8. The surveys will follow the 'Lambeth' methodology and will include day time and night time beats due to the mix of uses in the area and its close proximity to Hillingdon Underground Station.

3.4.9. In the event that the parking surveys reveal increases in parking stress levels in surrounding areas that can be attributed to the impact of the development, the introduction of further parking control measures will be considered and agreed with LBH. It is proposed that the s106 Agreement will include a financial contribution that would be used to finance the introduction and operation of widening the CPZ to incorporate elements of the area surrounding the development site, should it be required.

3.4.10. A mechanism would be included that would allow any surplus money to be returned to the developer by a certain date.

3.5 ON-SITE DELIVERY AND SERVICING ACTIVITIES

3.5.1. A number of measures will be introduced to manage the delivery and servicing activities on the site associated with the commercial uses. These will include the following:

- Contractors associated with deliveries to the site will be made aware of the delivery access restrictions and be required to adhere to these restrictions in writing. It is envisaged that development security staff will be familiar with the details of all delivery vehicles.
- Any other occasional delivery companies who do not normally deliver to the development will also be provided with delivery restrictions by on-site management and directed to the appropriate loading/unloading facilities.
- The loading bay associated with the commercial uses on the site are to be used for commercial servicing and refuse collection only.
- If a driver does not comply with the delivery access restrictions (as witnessed by the on-site management or reported via local residents), the supplier will be informed of the vehicle registration / driver not complying with the contracted conditions. Non-compliance with the delivery restrictions will then be used as a deciding factor in the appointment of future contracts associated with the development.
- Recommended delivery timings will be defined by the site management in order to minimise the number of service vehicle trips during the busiest times on the surrounding road network (such as the weekday morning and evening peak periods).

3.6 MANAGEMENT AND ENFORCEMENT

3.6.1. A maximum of one fob key per parking space will be issued at any given time. In order to obtain a fob key, residents will be required to provide details including their addresses, vehicle make and model, and vehicle registration number. Residents will also be required to demonstrate that they are the registered keeper of the vehicle and that the vehicle is registered at an address on-site (in order to prevent the sub-letting of car parking spaces).

3.6.2. Persons with access to an on-site parking space will not be permitted to rent out, charge, or sell parking facilities to a third party other than persons staying at or renting their property. This will be enforced through an appropriate clause within lease or tenancy agreements for each dwelling.

3.6.3. The estate management company shall, in accordance with the terms of the leases, be entitled to reallocate car parking spaces where there is a need to do so and by giving 28 days' notice to the affected leaseholders.

3.6.4. There will be no waiting list for on-site parking spaces once all parking spaces have been allocated. This is to reduce any likelihood of future residents parking vehicles in neighbouring residential streets on which parking is currently uncontrolled in the hope that an on-site parking space would become available in the near future.

3.6.5. Residents will not be eligible for a parking permit within the surrounding CPZ.

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PUBLIC

Appendix F

STAGE 1 ROAD SAFETY AUDIT

Public

Transport for London

Hillingdon Gardens, Master Brewer Site, Freezeland Way

Stage 1 Road Safety Audit

Ref: 70057679_RSA_1_001

Prepared for:

Inland PLC

By:

WSP

Prepared by:	Jon Noble, Audit Team Leader
Checked by:	Tom Curson, Audit Team Member
Approved by:	Jon Noble, Associate Director

Version	Status	Date
A	Draft	01/08/2019

1.0 INTRODUCTION

1.1 Commission

1.1.1 WSP have been commissioned by Tim Gabbitas of WSP on behalf of Ben Johnson of Inland PLC to undertake a Stage 1 Road Safety Audit of the proposed highway alterations to provide access to a proposed residential site of c. 500 dwellings on Freezeland Way, Hillingdon.

1.1.2 The Audit was undertaken by WSP in accordance with the Audit Brief issued by the Client Organisation in July 2019. It took place at the Chancery Lane offices of WSP in July 2019 and comprised an examination of the documents provided as listed in Appendix A, plus a visit to the site of the proposed scheme.

1.1.3 The visit to the site of the proposed scheme was made on 30 July 2019 between 11:00am and 13:00pm. During the site visit the weather was wet and the road surface wet throughout the audit. There was high traffic flow on Freezeland Way (westbound) and Long Lane throughout the audit, but low traffic flow on Freezeland Way (eastbound). There were few pedestrian and cyclists observed.

1.1.4 The eastbound Freezeland Way section of carriageway has parking on both sides of the road for business activities. There were several parked vehicles (both HGVs and commercial vans) during the site visit.

1.2 Terms of Reference

1.2.1 The Terms of Reference of this Audit are as described in TfL Procedure SQA-0170 dated May 2014. The Audit Team has examined and reported only on the road safety implications of the scheme as presented and how it impacts on all road users and has not examined or verified the compliance of the designs to any other criteria. However, to clearly explain a safety problem or the recommendation to resolve a problem the Audit Team may, on occasion, have referred to a design standard without touching on technical audit. An absence of comment relating to specific road users / modes in Section 3 of this report does not imply that they have not been considered; instead the Audit Team feels they are not adversely affected by the proposed changes.

1.2.2 This Safety Audit is not intended to identify pre-existing hazards which remain unchanged due to the proposals; hence they will not be raised in Section 3 of this report as they fall outside the remit of Road Safety Audit in general as specified in the procedure SQA-0170 dated May 2014. Safety issues identified during the Audit and site visit that are considered to be outside the Terms of Reference, but which the Audit Team wishes to draw to the attention of the Client Organisation, are set out in Section 4 of this report.

1.2.3 Nothing in this Audit should be regarded as a direct instruction to include or remove a measure from within the scheme. Responsibility for designing the scheme lies with the Designer and as such the Audit Team accepts no design responsibility for any changes made to the scheme as a result of this Audit.

1.2.4 In accordance with TfL Procedure SQA-0170 dated May 2014, this Audit has a maximum shelf life of 2 years. If the scheme does not progress to the next stage in its development within this period, then the scheme should be re-audited.

1.2.5 Unless general to the scheme, all comments and recommendations are referenced to the detailed design drawings and the locations have been indicated on the plan located in Appendix B.

1.2.6 It is the responsibility of the Design Organisation to complete the Designer's response section of this Audit report. Where applicable and necessary it is the responsibility of the Client Organisation to complete the Client comment section of this Audit report. Signatures from both the Design Organisation and Client Organisation must be added within Section 5 of this Audit report. A copy of which must be returned to the Audit Team.

1.3 Main Parties to the Audit

1.3.1 Client Organisation

Client contact details: Ben Johnson – Inland PLC

1.3.2 Design Organisation

Design contact details: Tim Gabbitas - WSP

1.3.3 Audit Team Approval

The Audit Team specified in 1.3.4 below were given approval to undertake this Audit by Andrew Coventry of TfL Road Safety Audit.

1.3.4 Audit Team

Audit Team Leader: Jon Noble – WSP

Audit Team Member: Tom Curson – WSP

1.3.5 Other Specialist Advisors

Not applicable.

1.4 Purpose of the Scheme

1.4.1 A planning application is to be submitted for a residential led development comprising c.500 dwellings, as well as ancillary retail and commercial uses. The site access is approximately 40m east of Hillingdon Circus on Freezeland Way and makes use of an existing abandoned entrance. The westbound Freezeland Way carriageway forms the A40 off slip. There is a short section of eastbound carriageway which is currently used primarily as a parking area for HGVs and other businesses uses.

1.4.2 The scheme upgrades the access but retains a no-right-turn from the site, improves the right turn from Freezeland Way and provides minor changes to the pedestrian crossing facilities at Hillingdon Circus.

1.5 Special Considerations

1.5.1 The audit team has no special considerations to raise.

2.0 ITEMS RAISED IN PREVIOUS ROAD SAFETY AUDITS

1.5.2 The audit team have not been made aware of any previous Road Safety Audits undertaken at this location.

3.0 ITEMS RAISED AT THIS STAGE 1 ROAD SAFETY AUDIT

This section should be read in conjunction with Paragraphs 1.2.1, 1.2.2 and 1.2.3 of this report.

3.1 GENERAL

3.1.1 No general road safety problems have been identified in this Road Safety Audit

3.2 THE ALIGNMENT

3.2.1 PROBLEM A

Location: Southbound approach from Long Lane to Hillingdon Circus

Summary: Kerb alignment not reflected by lane markings and side swipe collisions may result

The nearside kerbline on the southbound carriageway of Long Lane north of Hillingdon Circus is to be realigned to make space for a widened central pedestrian island. The proposed kerbline has a reverse curve, such that drivers will have to turn slightly left on the approach to the junction and then slightly right at the stop line.

The slight right turn is not reflected in lane markings as the change in alignment occurs at the stop line, where lane markings stop. Therefore, drivers in the middle and right lanes may not change their direction of travel, resulting in side impacts with vehicles in the nearside lane.

Additionally, the two exit lanes on Long Lane (south) are narrow (approximately 2.75m) and the lane separators only begin after the pedestrian crossing. Vehicles in the offside of the lanes may travel in significantly more than their half of the carriageway space and there is a risk of side impacts here too.

RECOMMENDATION

It is recommended that the reverse curve is removed, or moved further away from the stop line so that there are lane markings highlighting the alignment.

It is recommended that the lanes on the exit side are widened and additional lane markings provided.

Design Organisation Response	Part Accepted

The proposed alterations will result in widened pedestrian refuges on the northern, eastern and southern junction arms, thereby significantly improving pedestrian and cycling accessibility through the junction.

It should be noted that the existing junction layout features a reverse curve for southbound movements through the junction. While the proposed alterations would result in a slight worsening of this reverse curve, the impact would be negligible. Indeed, it is noted that there are no existing road markings on the southern exit arm (Long Lane south) of the junction before the pedestrian crossing. The proposed alterations would result in this pedestrian crossing moving further north to create a staggered cross across the south arm of the junction, thereby allowing road markings to be introduced further north to guide southbound traffic movements through the exit arm.

In addition, in order to aid the correct direction of travel through the junction for the southbound movement, additional road markings are proposed on the north arm of the junction between the pedestrian crossing and the yellow hatched box. This will help to delineate the reverse curve for southbound traffic beyond the stop line and before they reach the yellow hatched box.

There is insufficient space to widen the lanes on the exit (south) arm of the junction. It is therefore proposed to retain the existing lane widths in this location.

Appropriate signage will be maintained or introduced to help guide traffic through the exit (south) arm of the junction.

3.3 THE JUNCTIONS

3.3.1 PROBLEM B

Location: Freezeland Way immediately east of Hillingdon Circus

Summary: Right turn lane to access the site may confuse drivers and result in rear end shunts or loss of control type collisions.

Freezeland Way forms the two lane A40 off-slip and there is a change of speed limit from 50mph to 30mph approximately 200m from the start of the dual carriageway section. As such, some vehicles may be travelling at speed as they approach the Hillingdon Circus.

These two lanes widen to four lanes immediately before a gap in the central median that allows vehicles to turn into the proposed site.

The scheme extends this gap to make a slightly longer right turn facility, essentially creating a short fifth lane.

Although this might be considered an improvement on the existing situation, the level of usage with the development in place is likely to be significantly greater than currently – as this is only used by vehicles wishing to park.

Vehicles signalling to turn right into the site may be misinterpreted by drivers behind as wishing to turn right at Hillingdon Circus. This may result in rear-end shunt collisions as the first vehicle slows.

Additionally, the inception of the short right turn lane is developed immediately after a step in the kerbline of the central island. Drivers, especially at night, may read this first change in kerbline as the start of the right turn lane and clip the kerb and lose control.

RECOMMENDATION

It is recommended that the right turn lane is extended to begin with the first change in kerbline. The lane markings should be adjusted to allow vehicles to gain access to the right turn lane prior to the development of the right turn lane for Hillingdon Circus.

Design Organisation Response	Accepted
Noted. The right turn lane will be extended back to the first change in kerb line, as per the auditors' comment.	

3.4 NON-MOTORISED USER PROVISION

3.4.1 PROBLEM C

Location: Adjusted pedestrian crossing on Hillingdon Circus

Summary: Ponding at pedestrian crossing may result in pedestrian injury

The pedestrian crossing across the Long Lane (south) junction exit is being relocated northwards (towards the junction) to make a staggered crossing.

Water is currently ponding significantly in this area, where the dropped kerb is proposed, and this may lead to safety issues:

1. In the winter, this water may freeze and lead to slips, trips and falls.
2. Pedestrians may climb the guard railing to avoid having to travel through the standing water. This may result in pedestrians falling from the railing.
3. Pedestrians having crossed towards this area of water during a gap in traffic but not under a green man, might stop in the live carriageway to consider how to best get around the water and be hit by approaching traffic.

RECOMMENDATION

It is recommended that the drainage in this area is improved to ensure water does not pond

Design Organisation Response	Accepted
Noted. Appropriate mitigation and engineering measures will be introduced to ensure adequate drainage is provided for the safety of all road users.	

3.4.2 PROBLEM D

Location: Development access

Summary: Cyclists from the proposed development unable to safely access nearby facilities

There is a cycle route running east to west along the southern side of Freezeland Way and Western Avenue. The proposed development is likely to result in cyclists wishing to leave the site and access this cycle facility.

There is no proposed cycle facility to connect the site with this facility and this may result in cyclists attempting to cross Freezeland Way at inappropriate locations, or visually impaired pedestrians being confronted unexpectedly by cyclists in the footway.

RECOMMENDATION

It is recommended that a signed and safe cycle facility is provided to connect the site with the Freezeland Way route.

Design Organisation Response	Part Accepted

The only appropriate location for a crossing point from the site towards the cycle route on Freezeland Way is at the existing Hillingdon Circus crossing. This is already being widened to accommodate cyclists, though we will explore the option of introducing a toucan crossing on the eastern arm of Hillingdon Circus, with a width of 4m.

From the south side of the crossing, cyclists can utilise the lightly trafficked service road running parallel to Freezeland Way on its south side, which links to a shared footway/cycleway further to the east.

Clear signage will be introduced along the journey from the site to ensure the route for cyclists is legible.

3.5 SIGNING AND LIGHTING

3.5.1 No signing and lighting road safety problems have been identified in this Road Safety Audit

End of list of problems identified and recommendations offered in this Stage 1 Road Safety Audit

4.0 ISSUES IDENTIFIED DURING THE STAGE 1 ROAD SAFETY AUDIT THAT ARE OUTSIDE THE TERMS OF REFERENCE

Safety issues identified during the audit and site inspection that are considered to be outside the Terms of Reference, but which the Audit Team wishes to draw to the attention of the Client Organisation, are set out in this section. It is to be understood that, in raising these issues, the Audit Team in no way warrants that a full review of the highway environment has been undertaken beyond that necessary to undertake the Audit as commissioned.

Details of the guard railing relocation/removal are not shown adjacent to the proposed bus stop shelter. It is assumed that this will be adequately addressed at detailed design.

The triangle give-way road marking adjacent to the relocated parking provision on the Freezeland Way service road may need to be relocated to ensure that it does not conflict with the parking line markings.

It is not clear from the drawings what parking provision is being removed. It has been assumed that all of the parking on the southern side of Freezeland Way is being removed. If this is not the case, then parking might affect visibility to and from vehicles turning into the site.

5.0 SIGNATURES AND SIGN-OFF

5.1 AUDIT TEAM STATEMENT

We certify that we have examined the drawings and documents listed in Appendix A of this Safety Audit report. The Road Safety Audit has been carried out in accordance with TfL Procedure SQA-0170 dated May 2014, with the sole purpose of identifying any feature that could be removed or modified in order to improve the safety of the measures. The problems identified have been noted in this report together with associated suggestions for safety improvements that we recommend should be studied for implementation.

No one on the Audit Team has been involved with the design of the measures.

AUDIT TEAM LEADER:

Name: Jon Noble
MEng CEng MCIHT MSoRSA

Signed: 

Position: Associate Director

Date: 05 August 2019

Organisation: WSP

Address: WSP House
70 Chancery Lane
London
WC2A 1AF

Contact: Jon.Noble@wsp.com +44 (0)7776 465399

AUDIT TEAM MEMBER:

Name: Tom Curson
BSc (Hons) MCIHT MSoRSA

Signed: 

Position: Senior Transport Planner

Date: 05 August 2019

Organisation: WSP

Address: WSP House
70 Chancery Lane
London
WC2A 1AF

Contact: Thomas.Curson@wsp.com +44 (0)20 7093 6671

5.2 DESIGN TEAM STATEMENT

In accordance with SQA-0170 dated May 2014, I certify that I have reviewed the items raised in this Stage 1 Safety Audit report. I have given due consideration to each issue raised and have stated my proposed course of action for each in this report. I seek the Client Organisations endorsement of my proposals.

Name: Tim Gabbitas

Position: Director

Organisation: WSP

Signed: **Dated: 11/09/19**

5.3 CLIENT ORGANISATION STATEMENT

I accept these proposals by the Design Organisation.

Name: BEN JOHNSON

Position: DIRECTOR OF PLANNING

Organisation: INLAND HOMES

Signed: **Dated:** 12/09/19

APPENDIX A

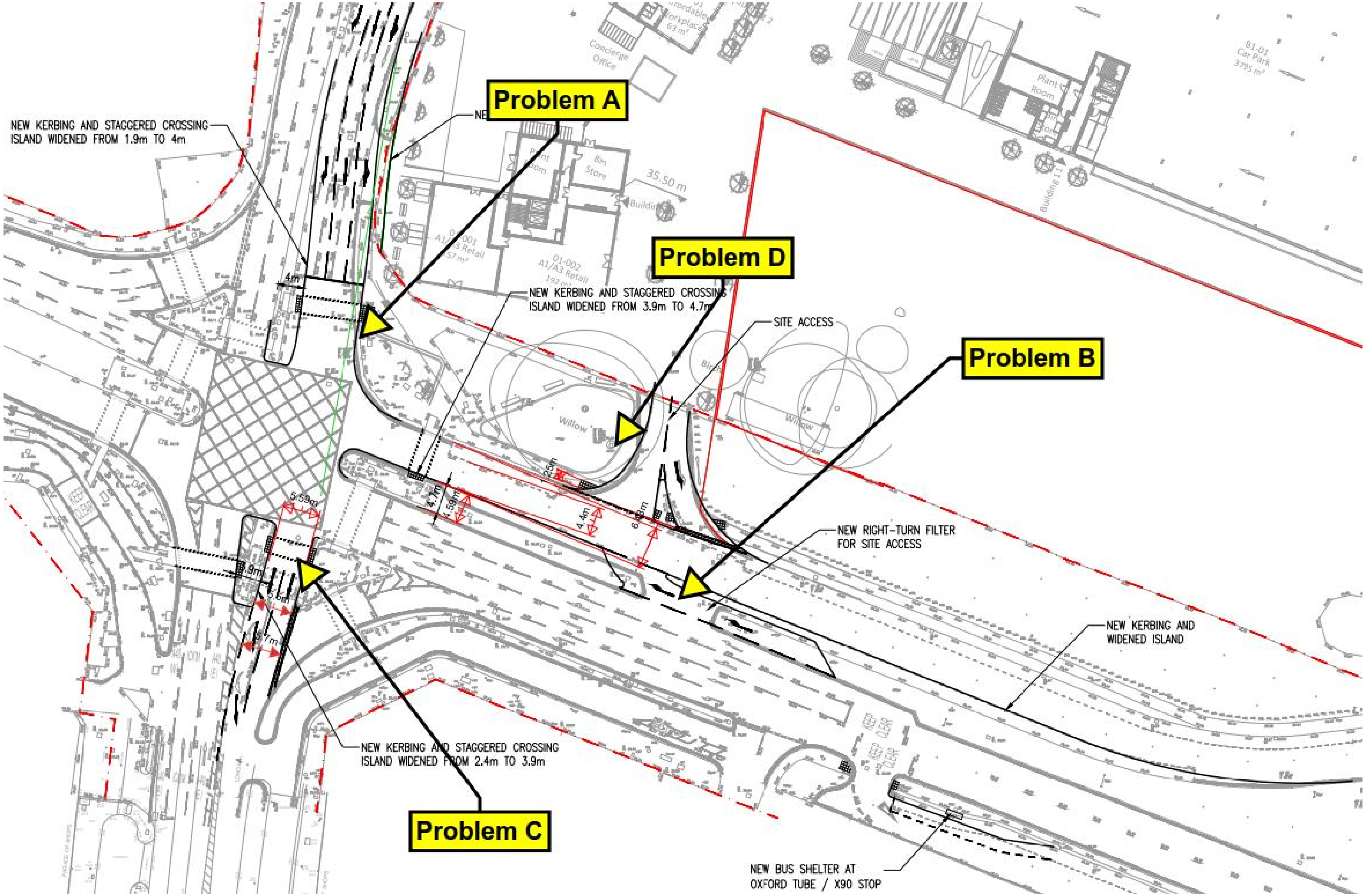
Documents Forming the Audit Brief

DRAWING NUMBER	DRAWING TITLE
70028642-SK-13	Proposed junction amendments

DOCUMENTS	DETAILS (where appropriate)
☒ Safety Audit Brief ☐ Site Location Plan ☐ Traffic signal details ☐ TfL signal safety checklist ☐ Departures from standard ☐ Previous Road Safety Audits ☐ Previous Designer Responses ☐ Collision data ☐ Collision plot ☐ Traffic flow / modelling data ☐ Pedestrian flow / modelling data ☐ Speed survey data ☐ Other documents	

APPENDIX B

Problem Locations



Problem A
Problem B
Problem C
Problem D
NEW KERBING AND STAGGERED CROSSING ISLAND WIDENED FROM 1.9m TO 4m
NEW KERBING AND STAGGERED CROSSING ISLAND WIDENED FROM 3.9m TO 4.7m
NEW KERBING AND STAGGERED CROSSING ISLAND WIDENED FROM 2.4m TO 3.9m
SITE ACCESS
NEW RIGHT-TURN FILTER FOR SITE ACCESS
NEW KERBING AND WIDENED ISLAND
NEW BUS SHELTER AT OXFORD TUBE / X90 STOP
4m
5.59m
4.7m
4.4m
35.50 m
Concierge Office
Plant Room
Bin Store
Willow
KEEP CLEAR

Appendix G

MANUAL PTAL

PTAL ASSESSMENT - EXISTING (Manual Calculation)

PTAI PARAMETERS	
Description:	Hillingdon Gardens
Assumptions:	Future existing
Date:	22/06/2020
WALK PARAMETERS	
Day of Week:	M-F
Time Period:	PM Peak (17:00 - 18:00)
Walk Speed:	4.8
BUS Walk Access Time (mins):	8
BUS Reliability Factor:	2
LU LRT Walk Access Time (mins):	12
LU LRT Reliability Factor:	0.75
NATIONAL RAIL Walk Access Time (mins):	12
NATIONAL RAIL Reliability Factor:	0.75
Co-ordinates:	507745, 184952

Summary

Location		**PTAL**	
1	Hillingdon Gardens	Level 3	13.64

LOCATION: Site Access **PTAL** **Level 3** 13.64

Mode	Stop/Station	Route	Distance (metres)	Frequency (vph)	Weight	Walk Time (mins)	AWT (mins)	TAT (mins)	EDF	AI	Sub Totals
BUS	*Hillingdon Circus (Stop E)*	*U2*	***134***	*6.0*	*1*	*1.68*	*7.00*	*8.68*	*3.46*	*3.46*	*3.46*
	Hillingdon Circus (Stop E)	*278*	***134***	*4.0*	*0.5*	*1.68*	*9.50*	*11.18*	*2.68*	*1.34*	*1.34*
	Hillingdon Circus (Stop OX)	*Oxford Tube*	***161***	*6.0*	*0.5*	*2.01*	*7.00*	*9.01*	*3.33*	*1.66*	*1.66*
LUL	*Hillingdon*	*Met Uxbridge - Aldgate (Slow)*	***288***	*5.3*	*1*	*3.60*	*6.38*	*9.98*	*3.01*	*3.01*	*3.01*
	Hillingdon	*Met Baker Street - Uxbridge (Fast)*	***288***	*2.3*	*0.5*	*3.60*	*13.63*	*17.23*	*1.74*	*0.87*	*0.87*
	Hillingdon	*Met Uxbridge - Baker Street (Slow)*	***288***	*3.7*	*0.5*	*3.60*	*8.92*	*12.52*	*2.40*	*1.20*	*1.20*
	Hillingdon	*Met Harrow on the Hill - Uxbridge*	***288***	*0.7*	*0.5*	*3.60*	*45.53*	*49.13*	*0.61*	*0.31*	*0.31*
	Hillingdon	*Pic Uxbridge - Cockfosters*	***288***	*3.7*	*0.5*	*3.60*	*8.92*	*12.52*	*2.40*	*1.20*	*1.20*
	Hillingdon	*Pic Arnos Grove - Uxbridge*	***288***	*1.0*	*0.5*	*3.60*	*30.75*	*34.35*	*0.87*	*0.44*	*0.44*
	Hillingdon	*Pic Oakwood - Uxbridge*	***288***	*0.3*	*0.5*	*3.60*	*91.66*	*95.26*	*0.31*	*0.16*	*0.16*
										13.64	13.64

PTAL ASSESSMENT - U2 PROPOSED (Manual Calculation)

PTAI PARAMETERS	
Description:	Hillingdon Gardens
Assumptions:	Future proposed (U2)
Date:	22/06/2020
WALK PARAMETERS	
Day of Week:	M-F
Time Period:	PM Peak (17:00 - 18:00)
Walk Speed:	4.8
BUS Walk Access Time (mins):	8
BUS Reliability Factor:	2
LU LRT Walk Access Time (mins):	12
LU LRT Reliability Factor:	0.75
NATIONAL RAIL Walk Access Time (mins):	12
NATIONAL RAIL Reliability Factor:	0.75
Co-ordinates:	507745, 184952

Summary

Location		PTAL	
1	Hillingdon Gardens	Level 3	13.95

LOCATION: Site Access **PTAL** **Level 3** 13.95

Mode	Stop/Station	Route	Distance (metres)	Frequency (vph)	Weight	Walk Time (mins)	AWT (mins)	TAT (mins)	EDF	AI	Sub Totals
BUS	*Hillingdon Circus (Stop E)*	*U2*	***134***	*7.0*	*1*	*1.68*	*6.29*	*7.96*	*3.77*	*3.77*	*3.77*
	Hillingdon Circus (Stop E)	*278*	***134***	*4.0*	*0.5*	*1.68*	*9.50*	*11.18*	*2.68*	*1.34*	*1.34*
	Hillingdon Circus (Stop OX)	*Oxford Tube*	***161***	*6.0*	*0.5*	*2.01*	*7.00*	*9.01*	*3.33*	*1.66*	*1.66*
LUL	*Hillingdon*	*Met Uxbridge - Aldgate (Slow)*	***288***	*5.3*	*1*	*3.60*	*6.38*	*9.98*	*3.01*	*3.01*	*3.01*
	Hillingdon	*Met Baker Street - Uxbridge (Fast)*	***288***	*2.3*	*0.5*	*3.60*	*13.63*	*17.23*	*1.74*	*0.87*	*0.87*
	Hillingdon	*Met Uxbridge - Baker Street (Slow)*	***288***	*3.7*	*0.5*	*3.60*	*8.92*	*12.52*	*2.40*	*1.20*	*1.20*
	Hillingdon	*Met Harrow on the Hill - Uxbridge*	***288***	*0.7*	*0.5*	*3.60*	*45.53*	*49.13*	*0.61*	*0.31*	*0.31*
	Hillingdon	*Pic Uxbridge - Cockfosters*	***288***	*3.7*	*0.5*	*3.60*	*8.92*	*12.52*	*2.40*	*1.20*	*1.20*
	Hillingdon	*Pic Arnos Grove - Uxbridge*	***288***	*1.0*	*0.5*	*3.60*	*30.75*	*34.35*	*0.87*	*0.44*	*0.44*
	Hillingdon	*Pic Oakwood - Uxbridge*	***288***	*0.3*	*0.5*	*3.60*	*91.66*	*95.26*	*0.31*	*0.16*	*0.16*
										13.95	13.95

PTAL ASSESSMENT - 278 PROPOSED (Manual Calculation)

PTAI PARAMETERS	
Description:	Hillingdon Gardens
Assumptions:	Future proposed (278)
Date:	22/06/2020

WALK PARAMETERS	
Day of Week:	M-F
Time Period:	PM Peak (17:00 - 18:00)
Walk Speed:	4.8
BUS Walk Access Time (mins):	8
BUS Reliability Factor:	2
LU LRT Walk Access Time (mins):	12
LU LRT Reliability Factor:	0.75
NATIONAL RAIL Walk Access Time (mins):	12
NATIONAL RAIL Reliability Factor:	0.75
Co-ordinates:	507745, 184952

Summary

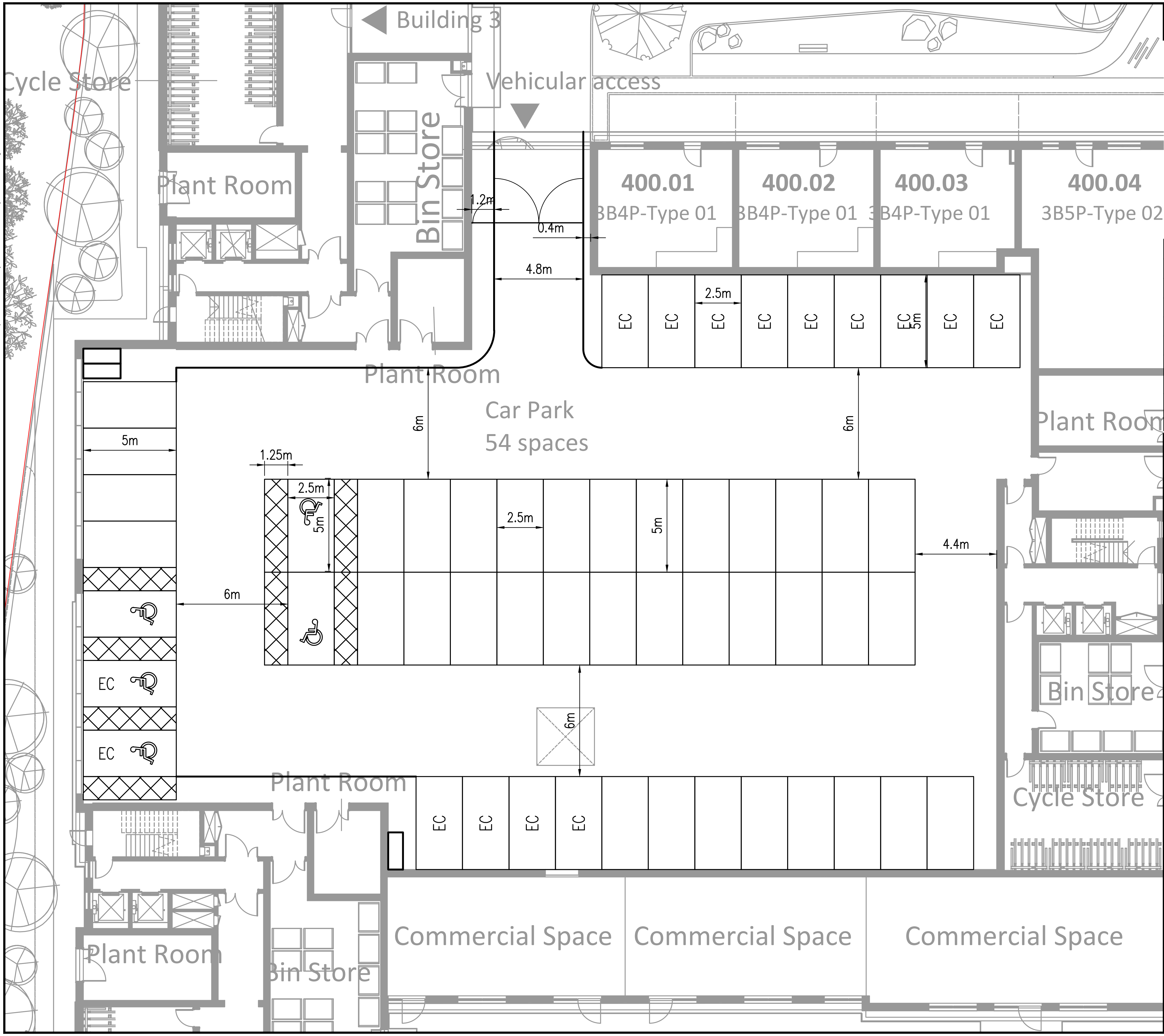
Location		PTAL	
1	Hillingdon Gardens	Level 3	13.85

LOCATION: Site Access **PTAL** **Level 3** 13.85

Mode	Stop/Station	Route	Distance (metres)	Frequency (vph)	Weight	Walk Time (mins)	AWT (mins)	TAT (mins)	EDF	AI	Sub Totals
BUS	*Hillingdon Circus (Stop E)*	*U2*	***134***	*6.0*	*1*	*1.68*	*7.00*	*8.68*	*3.46*	*3.46*	*3.46*
	Hillingdon Circus (Stop E)	*278*	***134***	*5.0*	*0.5*	*1.68*	*8.00*	*9.68*	*3.10*	*1.55*	*1.55*
	Hillingdon Circus (Stop OX)	*Oxford Tube*	***161***	*6.0*	*0.5*	*2.01*	*7.00*	*9.01*	*3.33*	*1.66*	*1.66*
LUL	*Hillingdon*	*Met Uxbridge - Aldgate (Slow)*	***288***	*5.3*	*1*	*3.60*	*6.38*	*9.98*	*3.01*	*3.01*	*3.01*
	Hillingdon	*Met Baker Street - Uxbridge (Fast)*	***288***	*2.3*	*0.5*	*3.60*	*13.63*	*17.23*	*1.74*	*0.87*	*0.87*
	Hillingdon	*Met Uxbridge - Baker Street (Slow)*	***288***	*3.7*	*0.5*	*3.60*	*8.92*	*12.52*	*2.40*	*1.20*	*1.20*
	Hillingdon	*Met Harrow on the Hill - Uxbridge*	***288***	*0.7*	*0.5*	*3.60*	*45.53*	*49.13*	*0.61*	*0.31*	*0.31*
	Hillingdon	*Pic Uxbridge - Cockfosters*	***288***	*3.7*	*0.5*	*3.60*	*8.92*	*12.52*	*2.40*	*1.20*	*1.20*
	Hillingdon	*Pic Arnos Grove - Uxbridge*	***288***	*1.0*	*0.5*	*3.60*	*30.75*	*34.35*	*0.87*	*0.44*	*0.44*
	Hillingdon	*Pic Oakwood - Uxbridge*	***288***	*0.3*	*0.5*	*3.60*	*91.66*	*95.26*	*0.31*	*0.16*	*0.16*
										13.85	13.85

Appendix H

HIGHWAY DRAWINGS



DO NOT SCALE

PARKING BAY COUNT
54 BAYS (INCLUDING 5 BLUE BADGE AND 15 ELECTRIC CHARGING)
3 MOTORCYCLE BAYS

REV	DATE	BY	DESCRIPTION	CHK	APP
J	31/07/2020	CRJB	UPDATED ARCHITECTS LAYOUT	BJS	TJG
H	03/10/2019	CRJB	UPDATED PLANNING SUBMISSION	BJS	TJG
G	02/10/2019	CRJB	UPDATED PLANNING SUBMISSION	BJS	TJG
F	12/09/2019	CRJB	PLANNING SUBMISSION	BJS	TJG
E	14/08/2019	CRJB	UPDATED ARCHITECTS AND PARKING LAYOUT	BJS	TJG
D	26/07/2019	CRJB	INITIAL ICIS STRUCTURAL LAYOUT ADDED	BJS	TJG
C	24/07/2019	CRJB	UPDATED LAYOUT WITH STRUCTURE	BJS	TJG
B	11/07/2019	CRJB	UPDATED ARCHITECTS AND PARKING LAYOUT	BJS	TJG
A	28/06/2019	CRJB	FIRST ISSUE	BJS	TJG

DRAWING STATUS: S0 - WORK IN PROGRESS

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CLIENT: INLAND HOMES

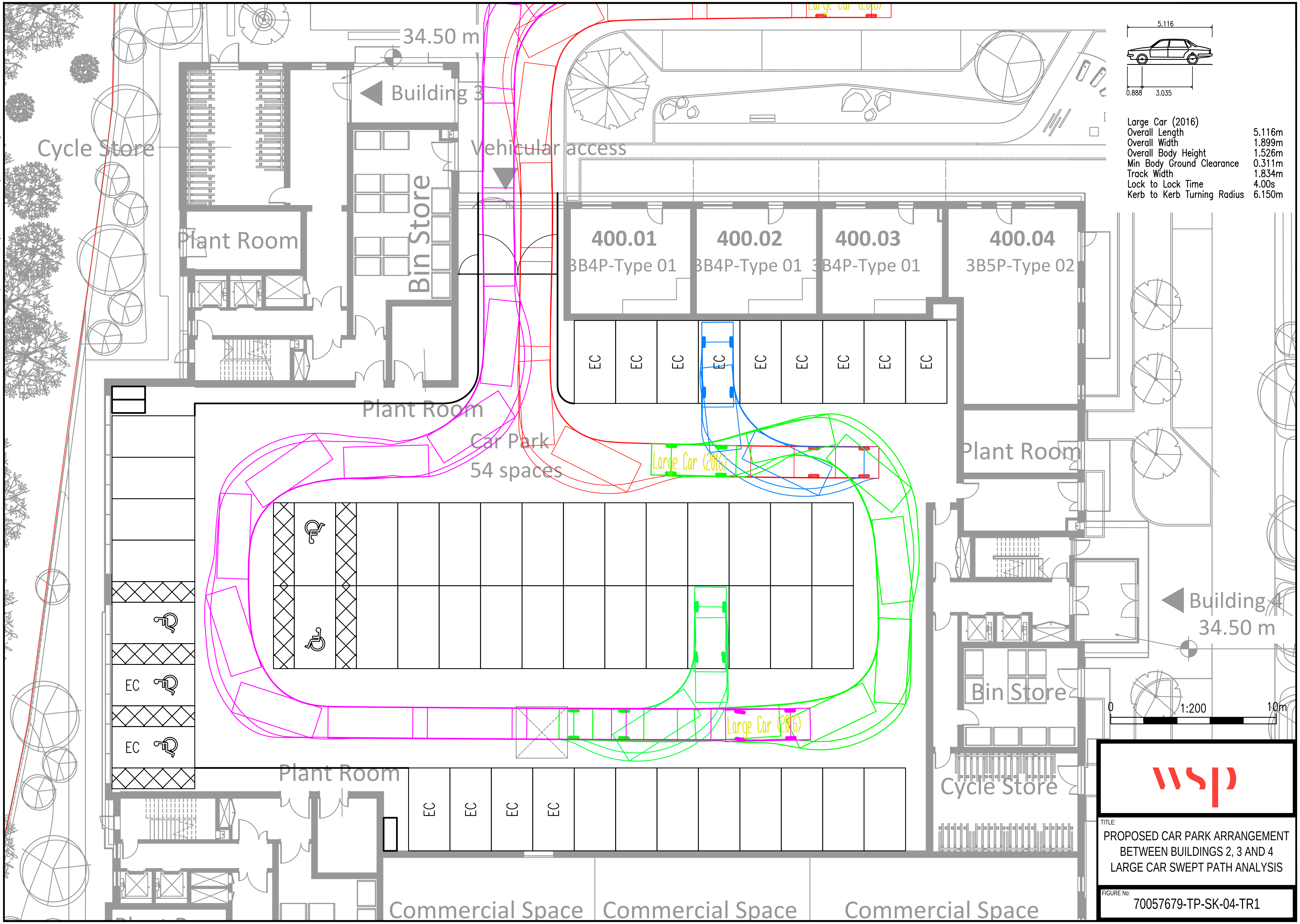
ARCHITECT: COLLADO COLLINS

PROJECT: HILLINGDON GARDENS

TITLE: PROPOSED CAR PARK ARRANGEMENT BETWEEN BUILDINGS 2, 3 AND 4

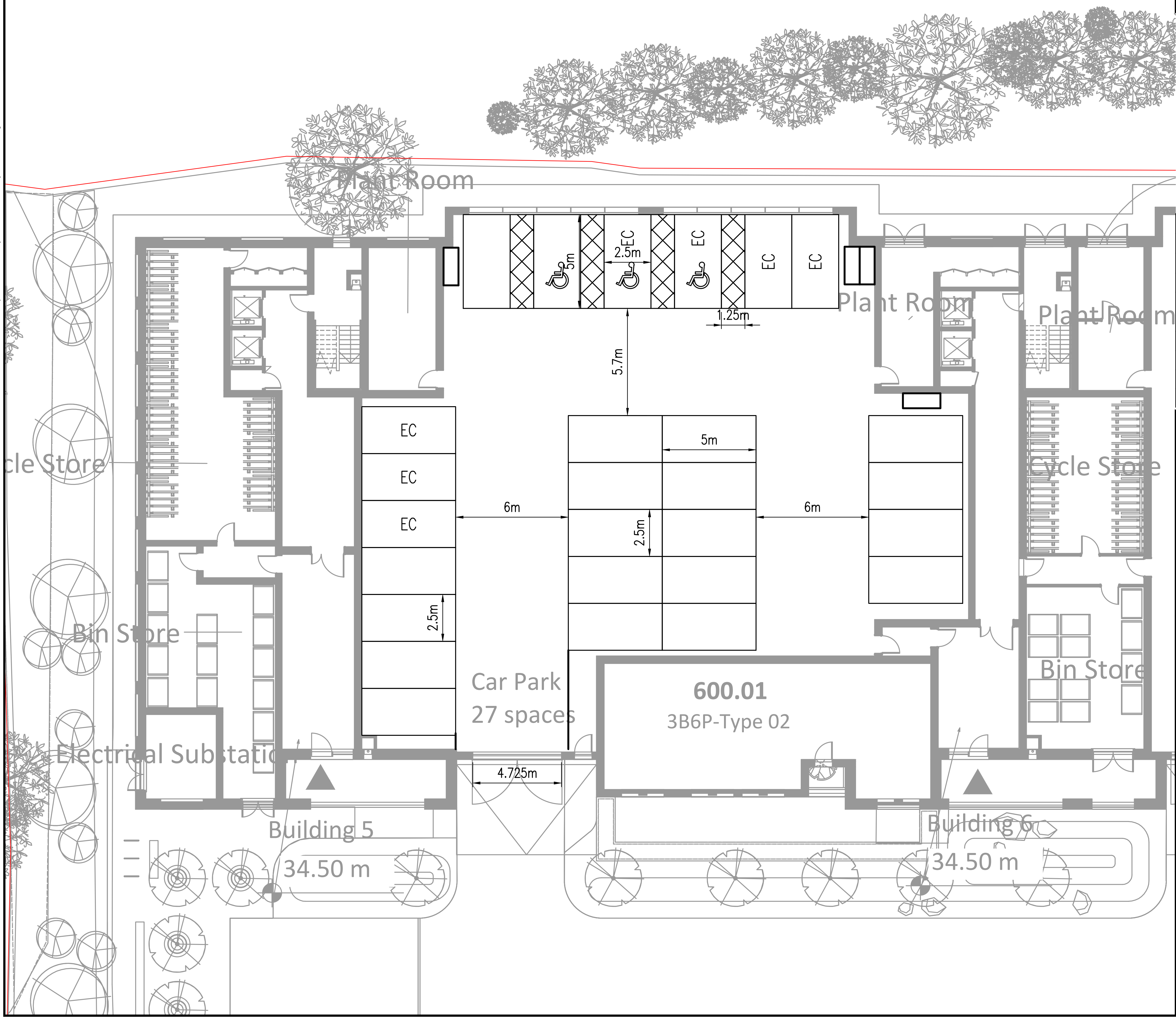
SCALE @ A3: 1:200	CHECKED: BJS		APPROVED: TJG
PROJECT No: 70057679	DESIGNED: CRJB	DRAWN: CRJB	DATE: October 19

DRAWING No: 70057679-TP-SK-04 REV: J



TITLE:
PROPOSED CAR PARK ARRANGEMENT
BETWEEN BUILDINGS 2, 3 AND 4
LARGE CAR SWEPT PATH ANALYSIS

FIGURE No:
70057679-TP-SK-04-TR1



DO NOT SCALE

PARKING BAY COUNT
27 BAYS (INCLUDING 3 BLUE BADGE AND 7 ELECTRIC CHARGING)
4 MOTORCYCLE BAYS

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H	03/10/2019	CRJB	UPDATED PLANNING SUBMISSION	BJS	TJG
G	02/10/2019	CRJB	UPDATED PLANNING SUBMISSION	BJS	TJG
F	12/09/2019	CRJB	PLANNING SUBMISSION	BJS	TJG
E	14/08/2019	CRJB	UPDATED ARCHITECTS AND PARKING LAYOUT	BJS	TJG
D	26/07/2019	CRJB	INITIAL ICIS STRUCTURAL LAYOUT ADDED	BJS	TJG
C	24/07/2019	CRJB	UPDATED LAYOUT WITH STRUCTURE	BJS	TJG
B	15/07/2019	CRJB	UPDATED TO LATEST ARCHITECT LAYOUT	BJS	TJG
A	28/06/2019	CRJB	FIRST ISSUE	BJS	TJG

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CLIENT: INLAND HOMES

ARCHITECT: COLLADO COLLINS

PROJECT: HILLINGDON GARDENS

TITLE: PROPOSED CAR PARK ARRANGEMENT BETWEEN BUILDINGS 5 AND 6

SCALE @ A3: 1:200	CHECKED: BJS		APPROVED: TJG
PROJECT No: 70057679	DESIGNED: CRJB	DRAWN: CRJB	DATE: October 19

DRAWING No: 70057679-TP-SK-05 REV: J

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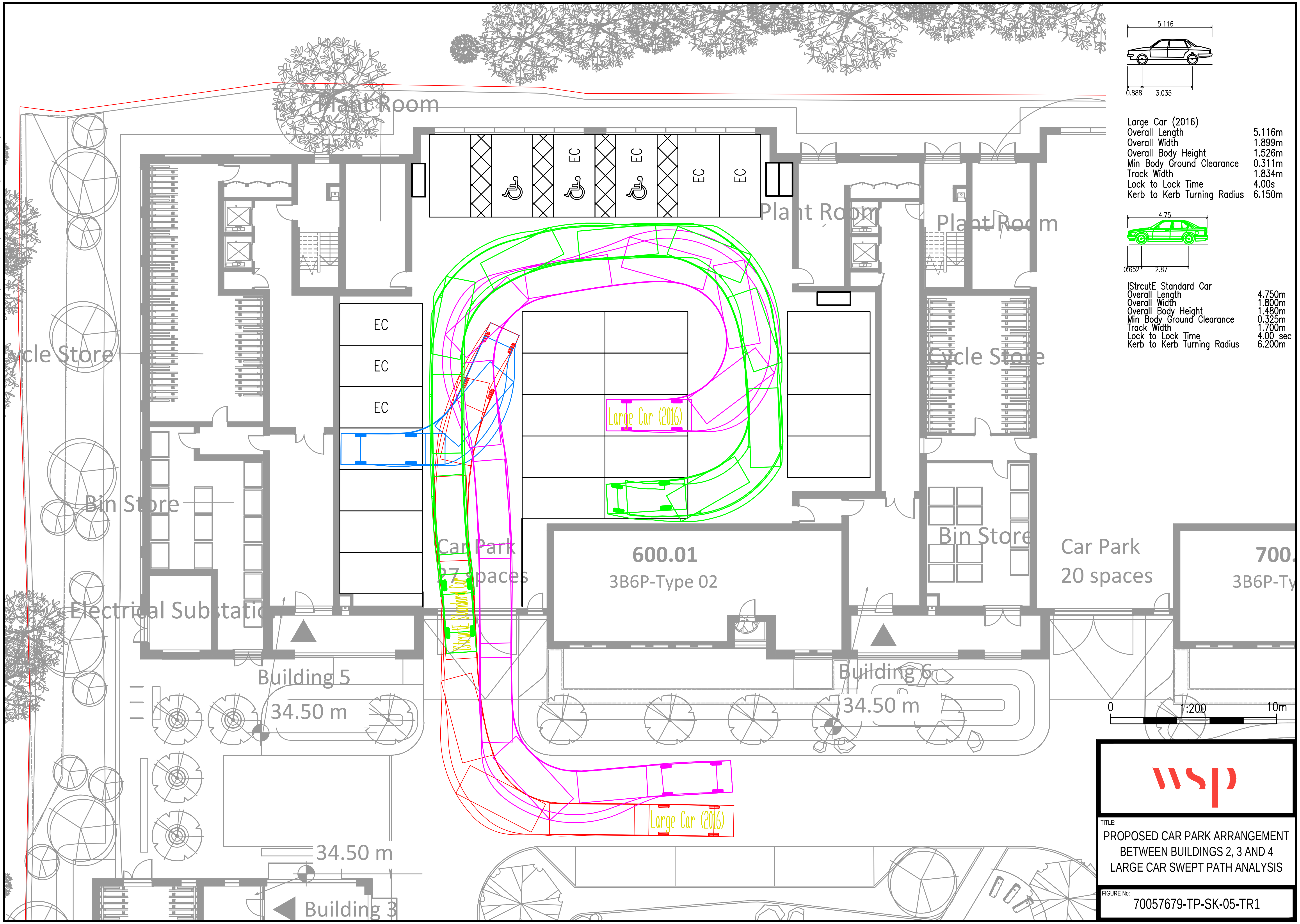

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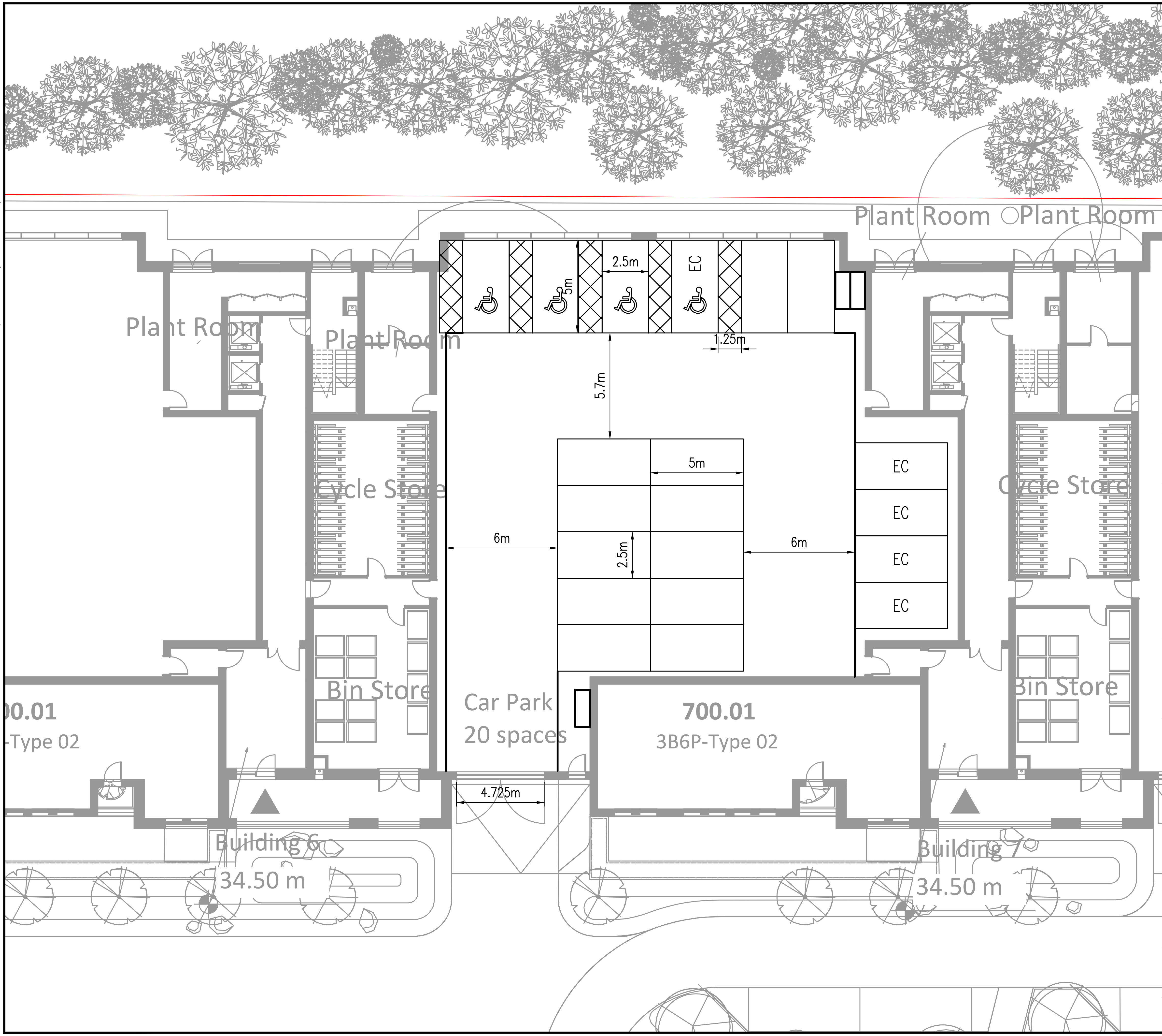

DO NOT SCALE

PARKING BAY COUNT
20 BAYS (INCLUDING 3 BLUE BADGE AND 5 ELECTRIC CHARGING)
3 MOTORCYCLE BAYS

REV	DATE	BY	DESCRIPTION	CHK	APP
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H	03/10/2019	CRJB	UPDATED PLANNING SUBMISSION	BJS	TJG
G	02/10/2019	CRJB	UPDATED PLANNING SUBMISSION	BJS	TJG
F	12/09/2019	CRJB	PLANNING SUBMISSION	BJS	TJG
E	14/08/2019	CRJB	UPDATED ARCHITECTS AND PARKING LAYOUT	BJS	TJG
D	26/07/2019	CRJB	INITIAL ICIS STRUCTURAL LAYOUT ADDED	BJS	TJG
C	24/07/2019	CRJB	UPDATED LAYOUT WITH STRUCTURE	BJS	TJG
B	15/07/2019	CRJB	UPDATED TO LATEST ARCHITECT LAYOUT	BJS	TJG
A	28/06/2019	CRJB	FIRST ISSUE	BJS	TJG

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CLIENT: INLAND HOMES

ARCHITECT: COLLADO COLLINS

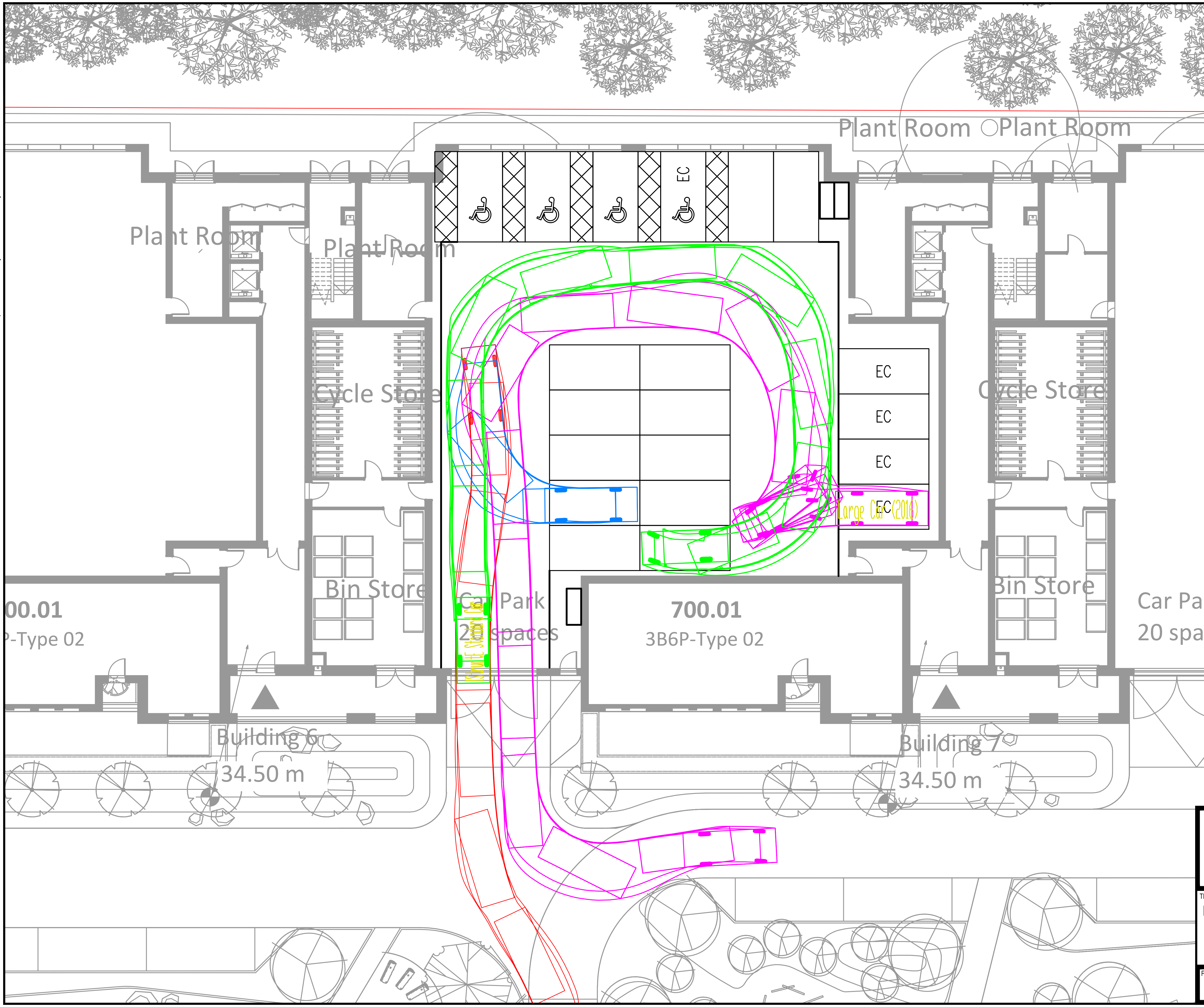
PROJECT: HILLINGDON GARDENS

TITLE: PROPOSED CAR PARK ARRANGEMENT BETWEEN BUILDINGS 6 AND 7

SCALE @ A3:	CHECKED:		APPROVED:
1:200	BJS		TJG
PROJECT No:	DESIGNED:	DRAWN:	DATE:
70057679	CRJB	CRJB	October 19

DRAWING No: 70057679-TP-SK-06

REV: J



5.116

0.888 3.035

Large Car (2016)	
Overall Length	5.116m
Overall Width	1.899m
Overall Body Height	1.526m
Min Body Ground Clearance	0.311m
Track Width	1.834m
Lock to Lock Time	4.00s
Kerb to Kerb Turning Radius	6.150m

4.75

0.652 2.87

IStrcutE Standard Car	
Overall Length	4.750m
Overall Width	1.800m
Overall Body Height	1.480m
Min Body Ground Clearance	0.325m
Track Width	1.700m
Lock to Lock Time	4.00 sec
Kerb to Kerb Turning Radius	6.200m

0 1:200 10m

wsp

TITLE:

PROPOSED CAR PARK ARRANGEMENT
BETWEEN BUILDINGS 2, 3 AND 4
LARGE CAR SWEPT PATH ANALYSIS

FIGURE No:

70057679-TP-SK-06-TR1

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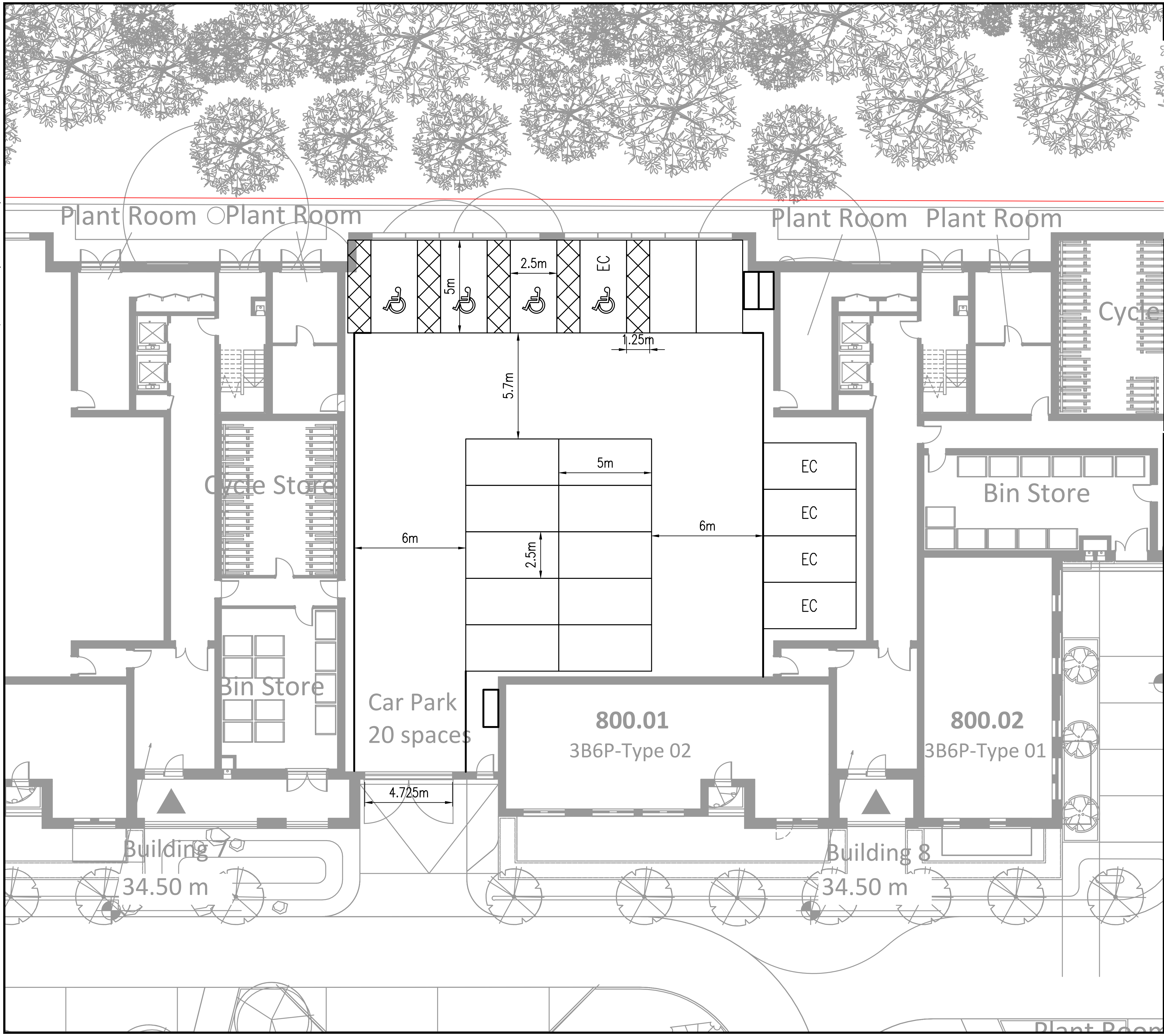

DO NOT SCALE

PARKING BAY COUNT
20 BAYS (INCLUDING 3 BLUE BADGE AND 5 ELECTRIC CHARGING)
3 MOTORCYCLE BAYS

REV	DATE	BY	DESCRIPTION	CHK	APP
J	31/07/2020	CRJB	UPDATED ARCHITECTS LAYOUT	BJS	TJG
H	03/10/2019	CRJB	UPDATED PLANNING SUBMISSION	BJS	TJG
G	02/10/2019	CRJB	UPDATED PLANNING SUBMISSION	BJS	TJG
F	12/09/2019	CRJB	PLANNING SUBMISSION	BJS	TJG
E	14/08/2019	CRJB	UPDATED ARCHITECTS AND PARKING LAYOUT	BJS	TJG
D	26/07/2019	CRJB	INITIAL ICIS STRUCTURAL LAYOUT ADDED	BJS	TJG
C	24/07/2019	CRJB	UPDATED LAYOUT WITH STRUCTURE	BJS	TJG
B	15/07/2019	CRJB	UPDATED TO LATEST ARCHITECT LAYOUT	BJS	TJG
A	28/06/2019	CRJB	FIRST ISSUE	BJS	TJG

DRAWING STATUS: S0 - WORK IN PROGRESS

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CLIENT: INLAND HOMES

ARCHITECT: COLLADO COLLINS

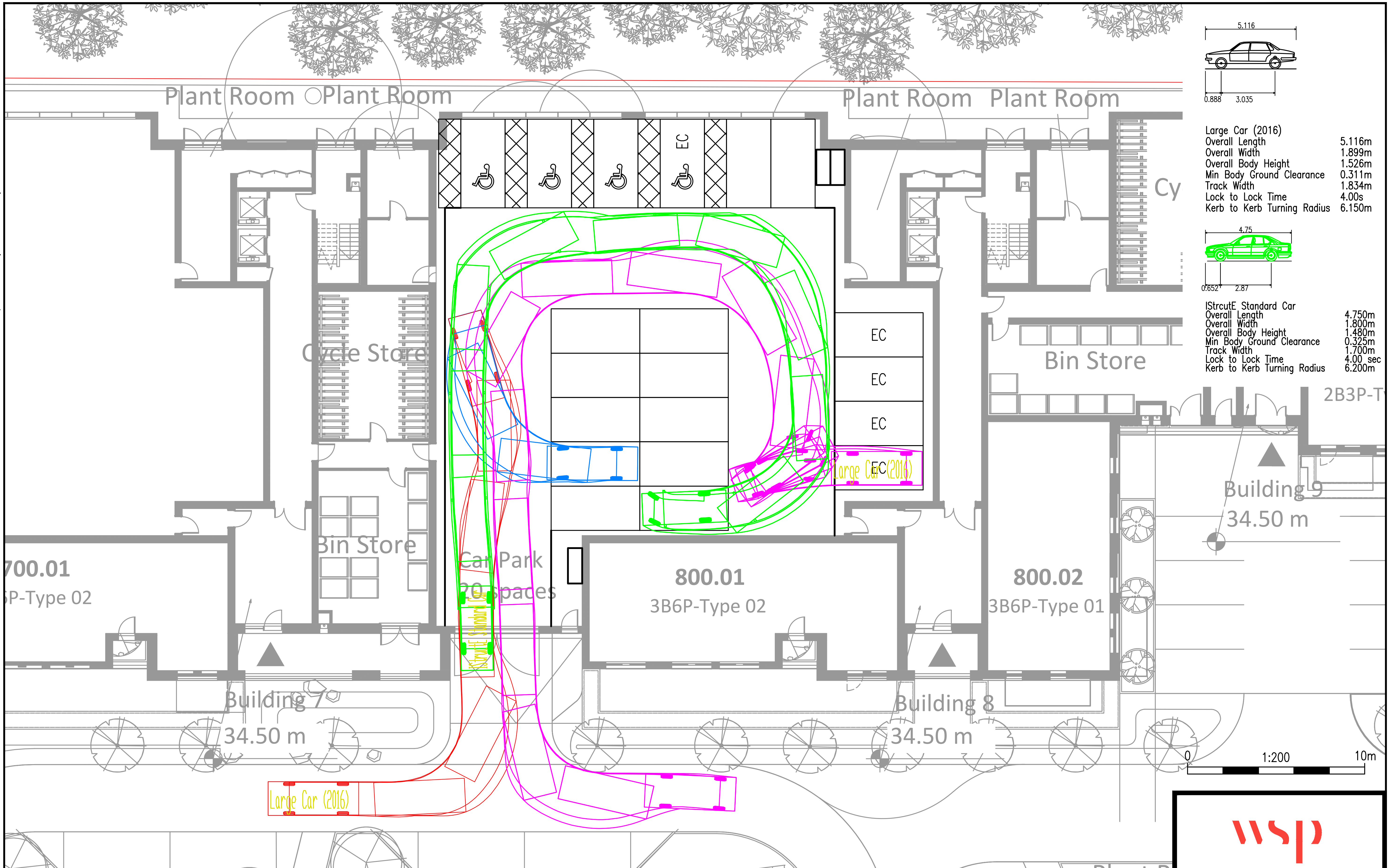
PROJECT: HILLINGDON GARDENS

TITLE: PROPOSED CAR PARK ARRANGEMENT BETWEEN BUILDINGS 7 AND 8

SCALE @ A3:	CHECKED:		APPROVED:
1:200	BJS		TJG
PROJECT No: 70057679	DESIGNED: CRJB	DRAWN: CRJB	DATE: October 19

DRAWING No: 70057679-TP-SK-07

REV: J



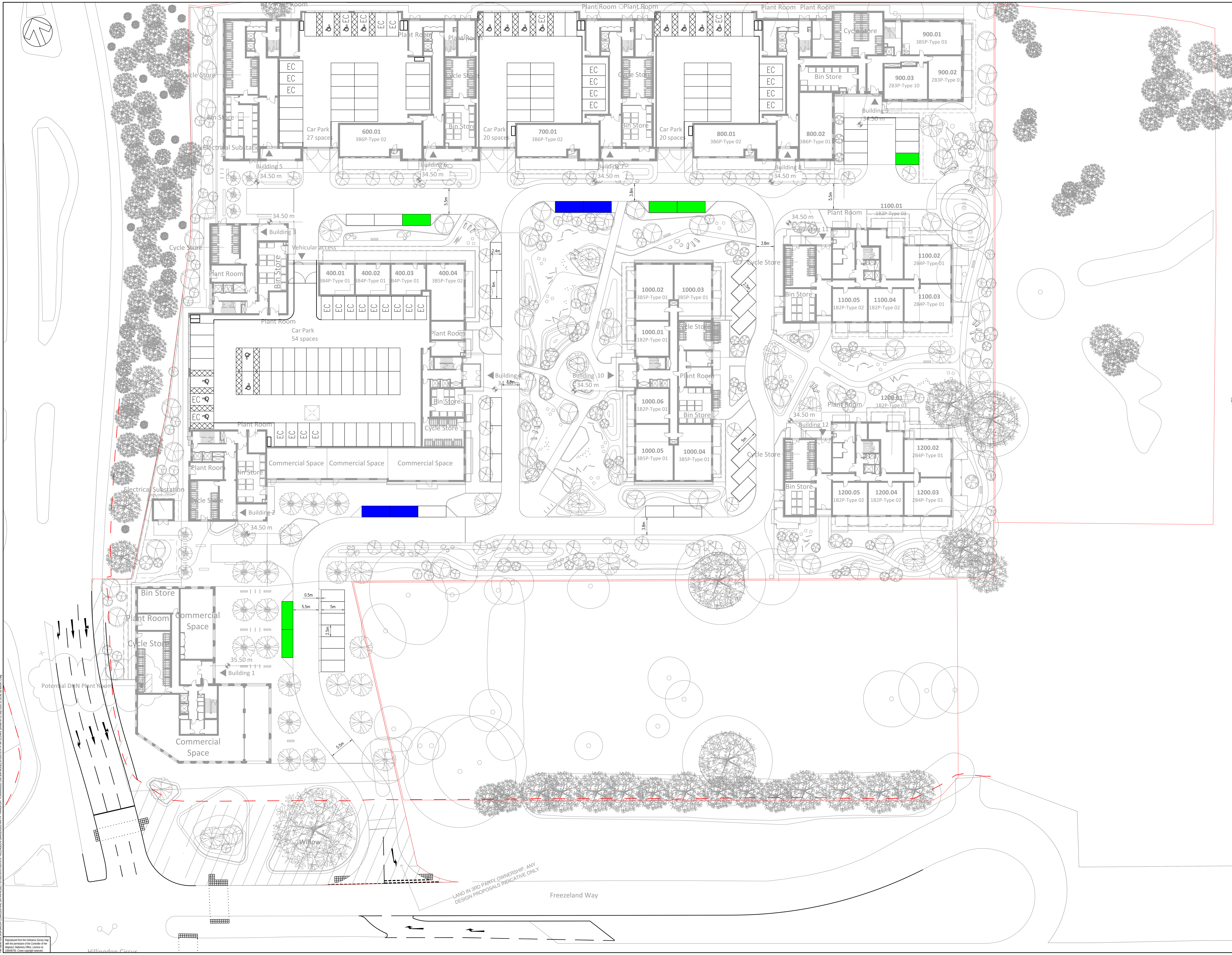
TITLE:

PROPOSED CAR PARK ARRANGEMENT BETWEEN BUILDINGS 2, 3 AND 4 LARGE CAR SWEPT PATH ANALYSIS

FIGURE No:

70057679-TP-SK-07-TR1

File name \\UK.WSPGROUP.COM\CENTRAL DATA\PROJECTS\70057xxx\70057679 - HILLINGDON GARDENS\03 WIP\TP TRANSPORT PLANNING\02 CAD BIM MODELS\70057679-TP-SK-07.DWG, printed on 31 July 2020 15:31:33, by Russell, Matt



DO NOT SCALE

PODIUM PARKING COUNT	
BAY TYPE	GROUND LEVEL
STANDARD	105
BLUE BADGE	16
TOTAL RESIDENTIAL	121
COMMERCIAL / VISITOR	0
CAR CLUB	0
MOTORBIKE	13

EXTERNAL PARKING COUNT	
BAY TYPE	GROUND LEVEL
STANDARD	33
BLUE BADGE	0
TOTAL RESIDENTIAL	33
COMMERCIAL / VISITOR	6
CAR CLUB	4
MOTORBIKE	0

TOTAL	
BAY TYPE	GROUND LEVEL
RESIDENT	138
BLUE BADGE	16
TOTAL RESIDENTIAL	154
COMMERCIAL / VISITOR	6
CAR CLUB	4
MOTORBIKE	13

CAR CLUB BAYS
VISITOR BAYS
ELECTRIC CHARGING BAY
BLUE BADGE PARKING BAY
MOTORCYCLE PARKING BAY

REV	DATE	BY	DESCRIPTION	CHK	APP
F	31/07/2020	CRJB	UPDATED ARCHITECTS LAYOUT	BJS	TJG
E	14/07/2020	CRJB	UPDATED PARKING ARRANGEMENT	BJS	TJG
D	03/10/2019	CRJB	UPDATED PLANNING SUBMISSION	BJS	TJG
C	12/09/2019	CRJB	PLANNING SUBMISSION	BJS	TJG
B	14/08/2019	CRJB	ROAD AND ON-STREET PARKING UPDATED	BJS	TJG
A	07/08/2019	CRJB	FIRST ISSUE	BJS	TJG

DRAWING STATUS: S0 - WORK IN PROGRESS

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CLIENT: INLAND HOMES

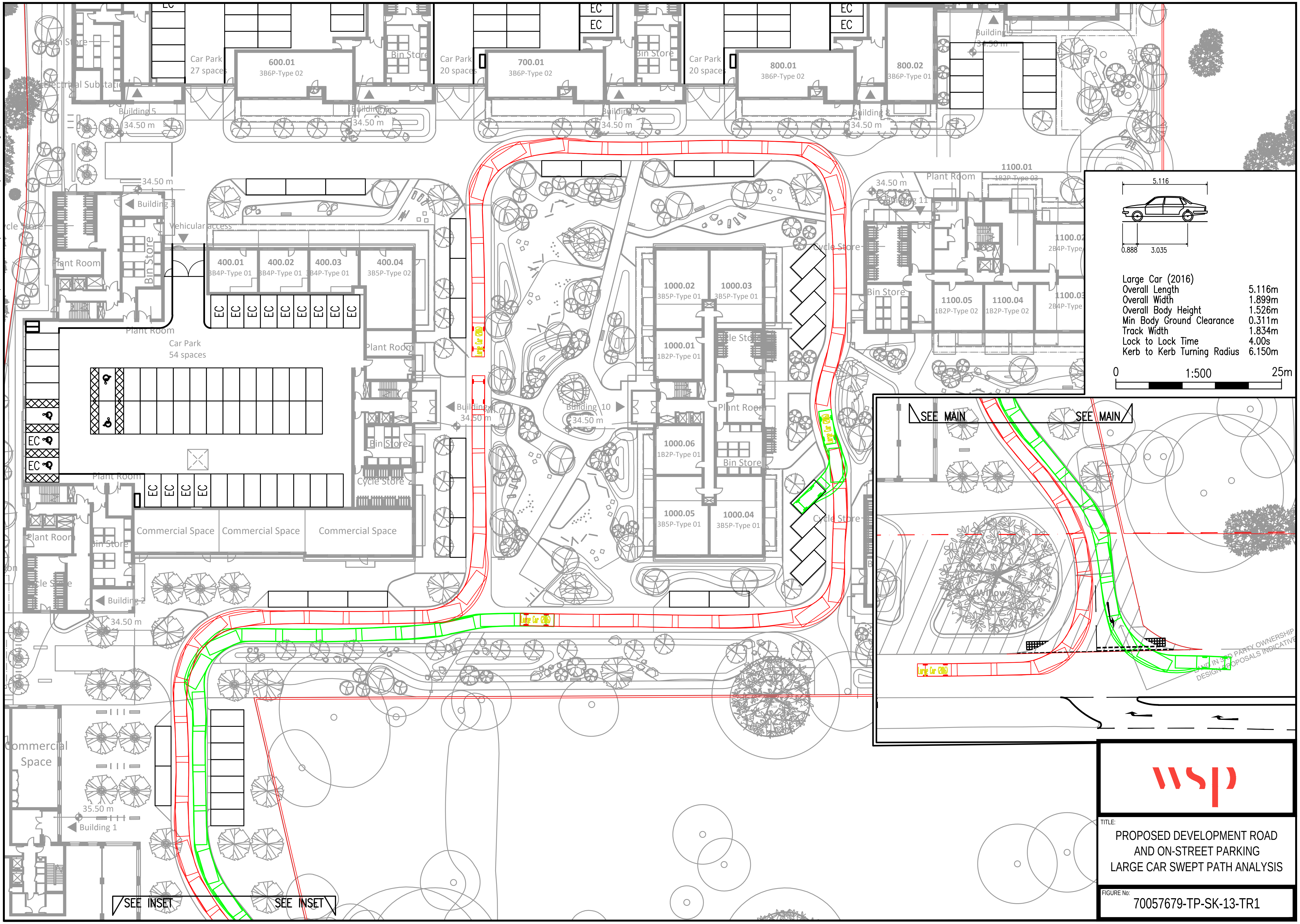
ARCHITECT: COLLADO COLLINS

PROJECT: HILLINGDON GARDENS

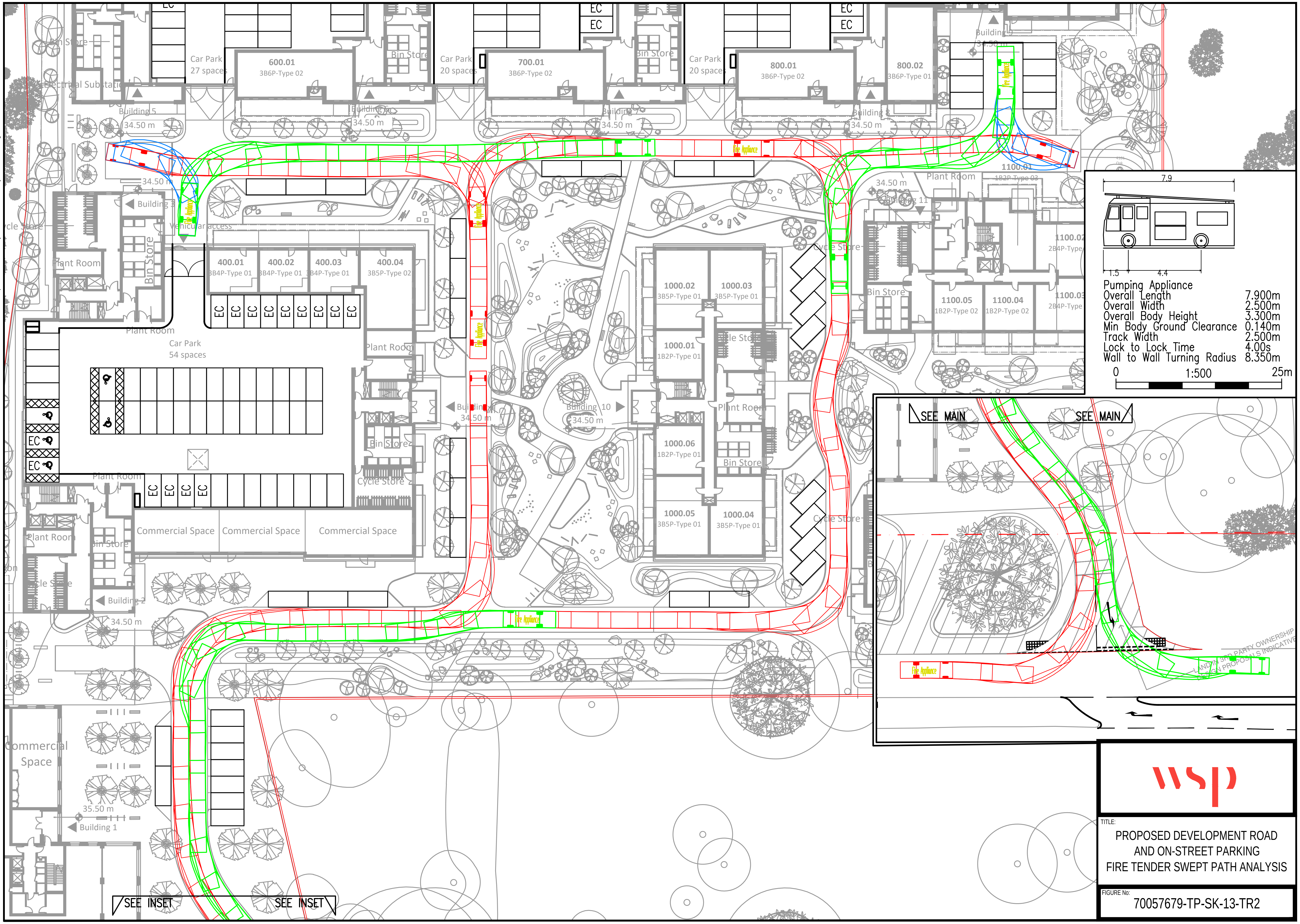
TITLE: PROPOSED DEVELOPMENT ROAD AND ON-STREET PARKING

SCALE @ A0: 1:250	CHECKED: BJS		APPROVED: TJG
PROJECT No: 70057679	DESIGNED: CRJB	DRAWN: CRJB	DATE: July 20

DRAWING No: 70057679-TP-SK-13 REV: F



File name \\UK.WSPGROUP.COM\CENTRAL DATA\PROJECTS\700576XX\70057679 - HILLINGDON GARDENS\03 WIP\TP TRANSPORT PLANNING\02 CAD BIM MODELS\70057679-TP-SK-13.DWG, printed on 31 July 2020 12:27:02 by Burton, Craig

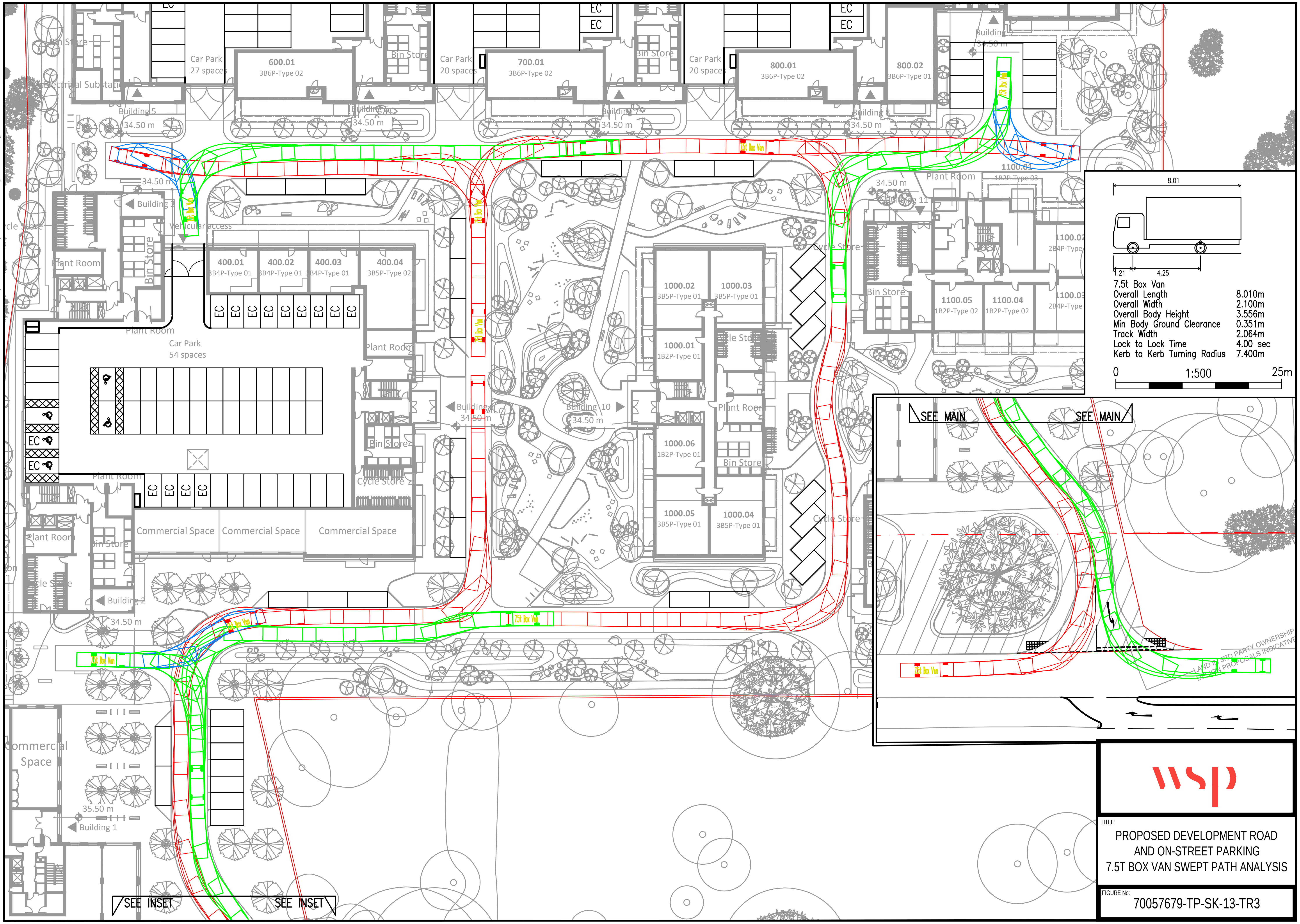


wsp

TITLE:
PROPOSED DEVELOPMENT ROAD AND ON-STREET PARKING FIRE TENDER SWEPT PATH ANALYSIS

FIGURE No:
70057679-TP-SK-13-TR2

File name \\UK.WSPGROUP.COM\CENTRAL DATA\PROJECTS\700576XX\70057679 - HILLINGDON GARDENS\03 WIP\TP TRANSPORT PLANNING\02 CAD BIM MODELS\70057679-TP-SK-13.DWG, printed on 31 July 2020 12:27:28 by Burton, Craig



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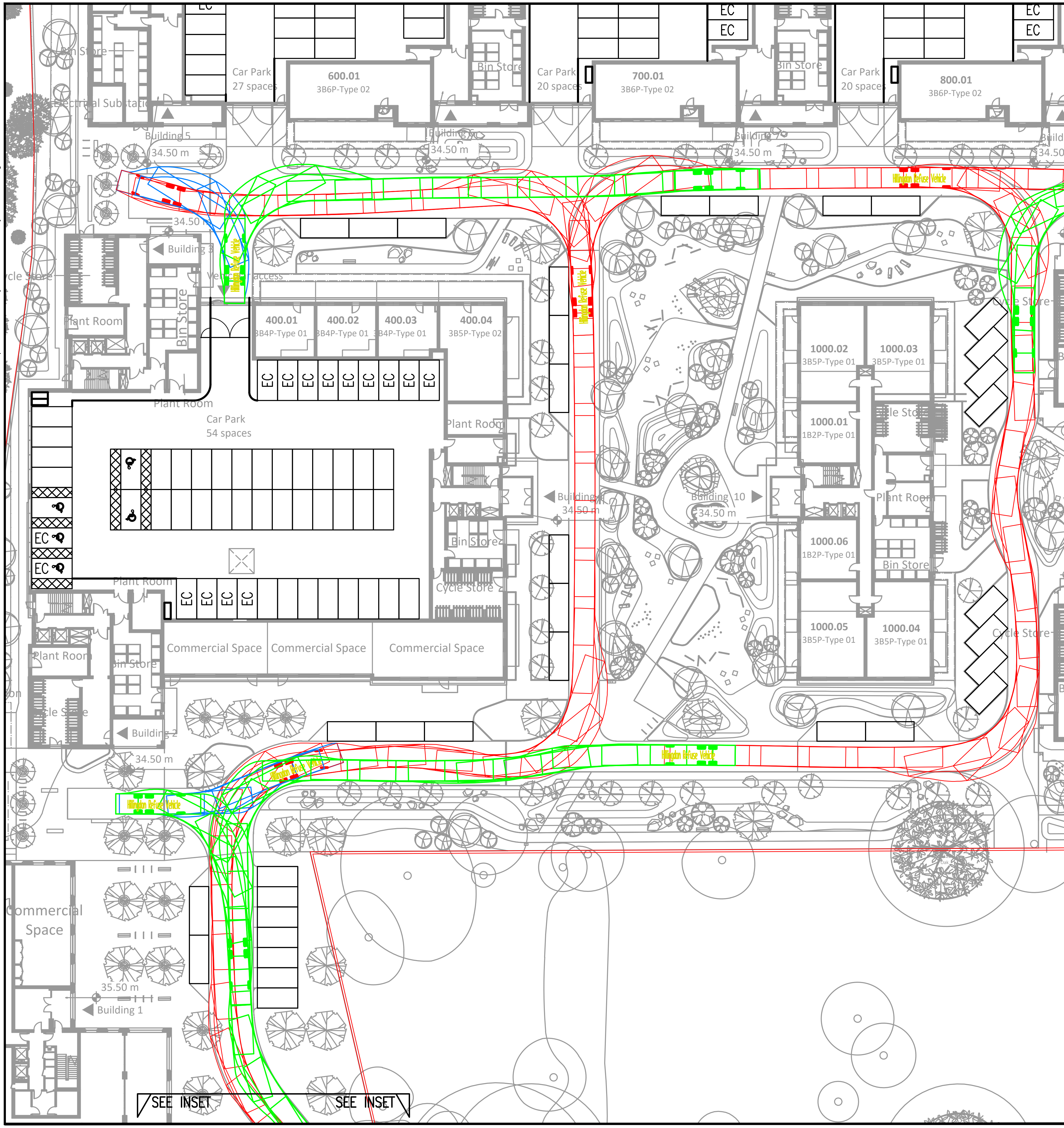
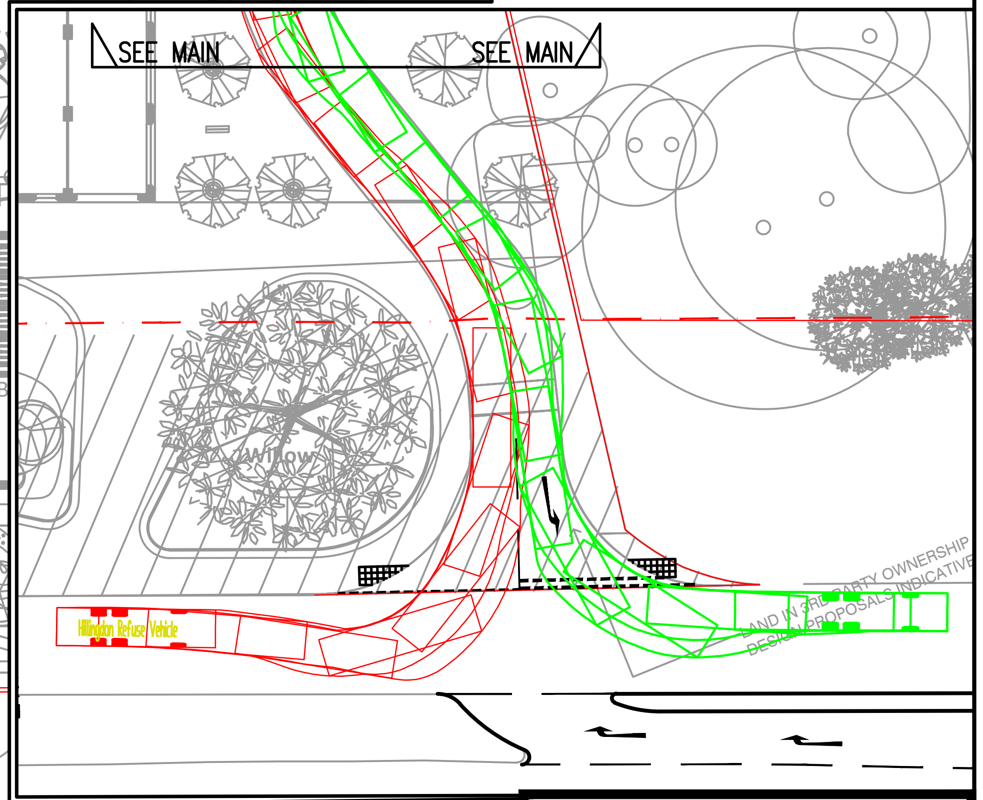
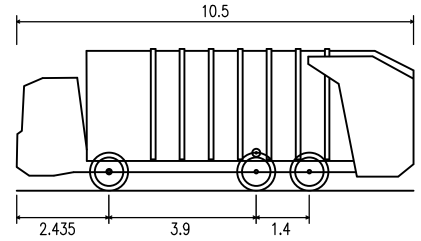






Hillingdon Refuse Vehicle

Overall Length	10.500m
Overall Width	2.500m
Overall Body Height	3.750m
Min Body Ground Clearance	0.366m
Track Width	2.450m
Lock to lock time	4.00s
Wall to Wall Turning Radius	12.000m

0 1:500 25m

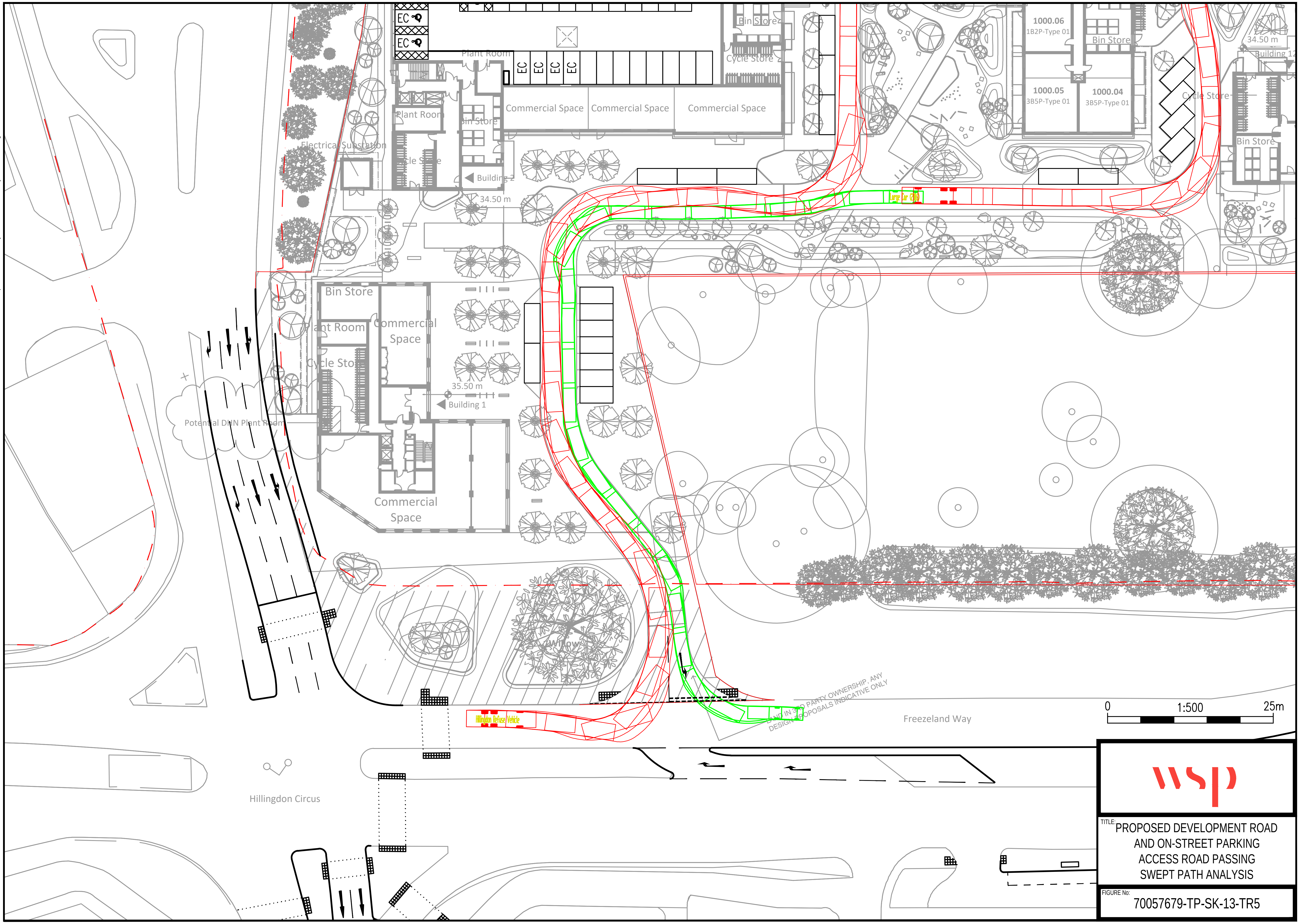
wsp

TITLE:

PROPOSED DEVELOPMENT ROAD AND ON-STREET PARKING WASTE VEHICLE SWEPT PATH ANALYSIS

FIGURE No:

70057679-TP-SK-13-TR4

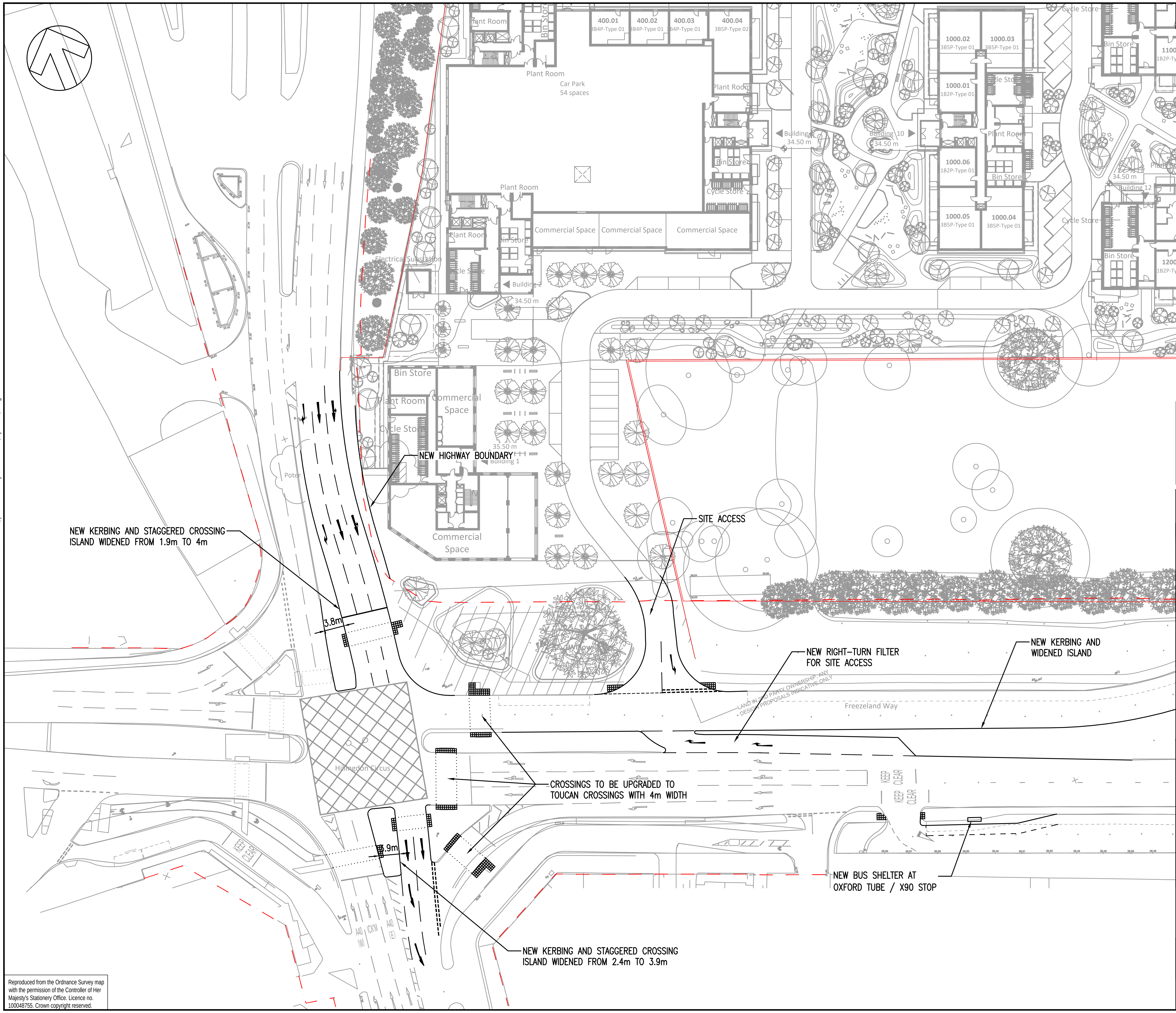


wsp

TITLE: PROPOSED DEVELOPMENT ROAD AND ON-STREET PARKING ACCESS ROAD PASSING SWEPT PATH ANALYSIS

FIGURE No: 70057679-TP-SK-13-TR5

File name \\UK.WSPGROUP.COM\CENTRAL DATA\PROJECTS\700576XX\70057679 - HILLINGDON GARDENS\03 WIP\TP TRANSPORT PLANNING\02 CAD BIM MODELS\70057679-TP-SK-13.DWG, printed on 31 July 2020 12:28:37, by Burton, Craig



File name \\UK.WSPGROUP.COM\CENTRAL DATA\PROJECTS\70057xxx\70057679 - HILLINGDON GARDENS\03 WIP\TP TRANSPORT PLANNING\02 CAD BIM MODELS\70057679-TP-SK-17.DWG, printed on 31 July 2020 12:24:17, by Burton, Craig

DO NOT SCALE

NOTES

1. PROPOSED LAYOUT SUBJECT TO ROAD SAFETY AUDIT

REV	DATE	BY	DESCRIPTION	CHK	APP
D	31/07/2020	CRJB	UPDATED ARCHITECTS LAYOUT	BJS	TG
C	03/10/2019	CRJB	UPDATED PLANNING SUBMISSION	BJS	TG
B	12/09/2019	CRJB	PLANNING SUBMISSION	BS	TG
A	28/08/2019	CRJB	FIRST ISSUE	TG	TG

DRAWING STATUS: S2 - FOR INFORMATION

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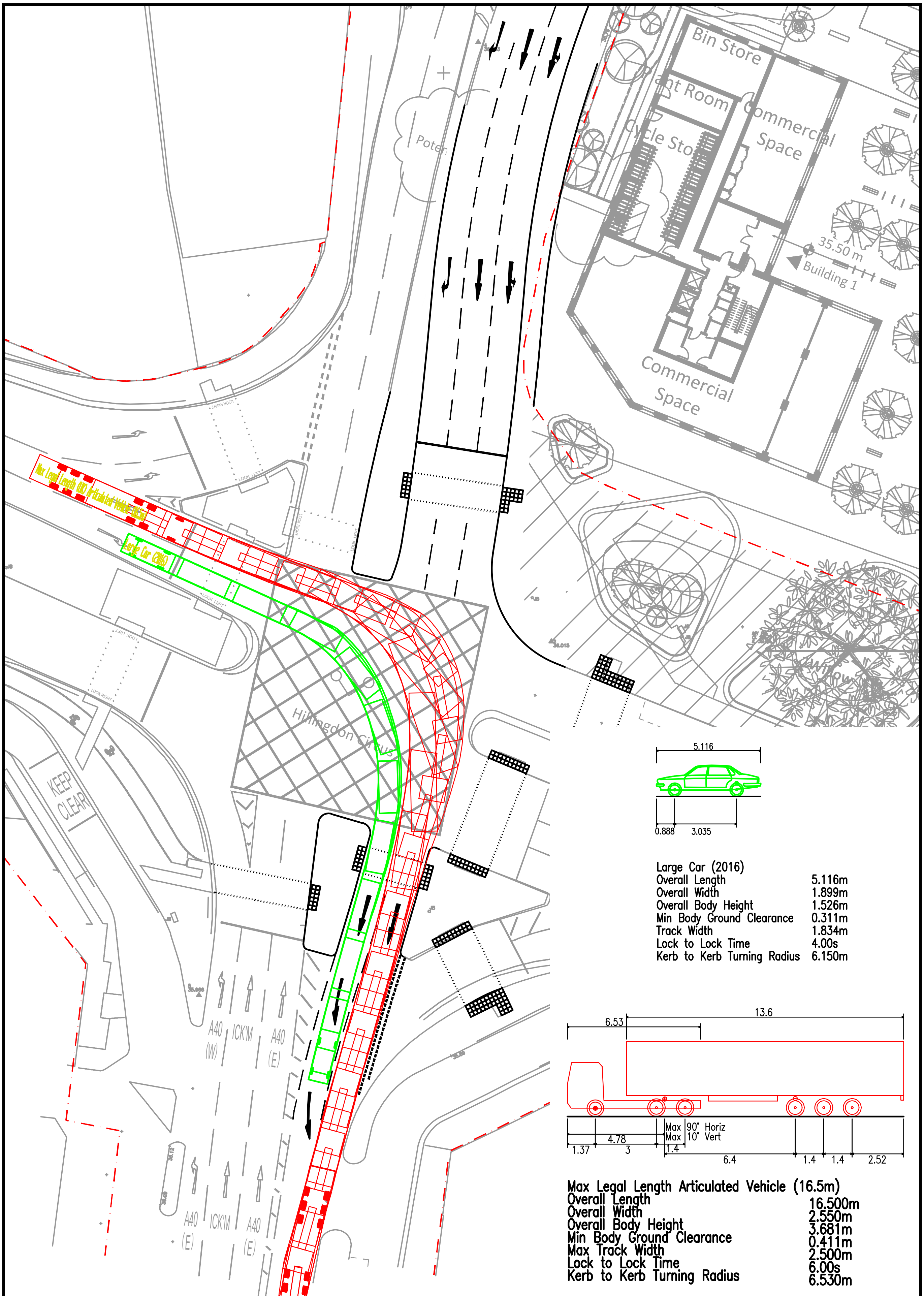
CLIENT: INLAND HOMES

ARCHITECT: COLLADO COLLINS

PROJECT: HILLINGDON GARDENS

TITLE: PROPOSED HIGHWAY IMPROVEMENTS

SCALE @ A2: 1:500	CHECKED: TG		APPROVED: TG
PROJECT No: 70057679	DESIGNED: CRJB	DRAWN: MR	DATE: October 19
DRAWING No: 70057679-TP-SK-17			REV: D



Large Car (2016)	
Overall Length	5.116m
Overall Width	1.899m
Overall Body Height	1.526m
Min Body Ground Clearance	0.311m
Track Width	1.834m
Lock to Lock Time	4.00s
Kerb to Kerb Turning Radius	6.150m

Max Legal Length Articulated Vehicle (16.5m)	
Overall Length	16.500m
Overall Width	2.550m
Overall Body Height	3.681m
Min Body Ground Clearance	0.411m
Max Track Width	2.500m
Lock to Lock Time	6.00s
Kerb to Kerb Turning Radius	6.530m

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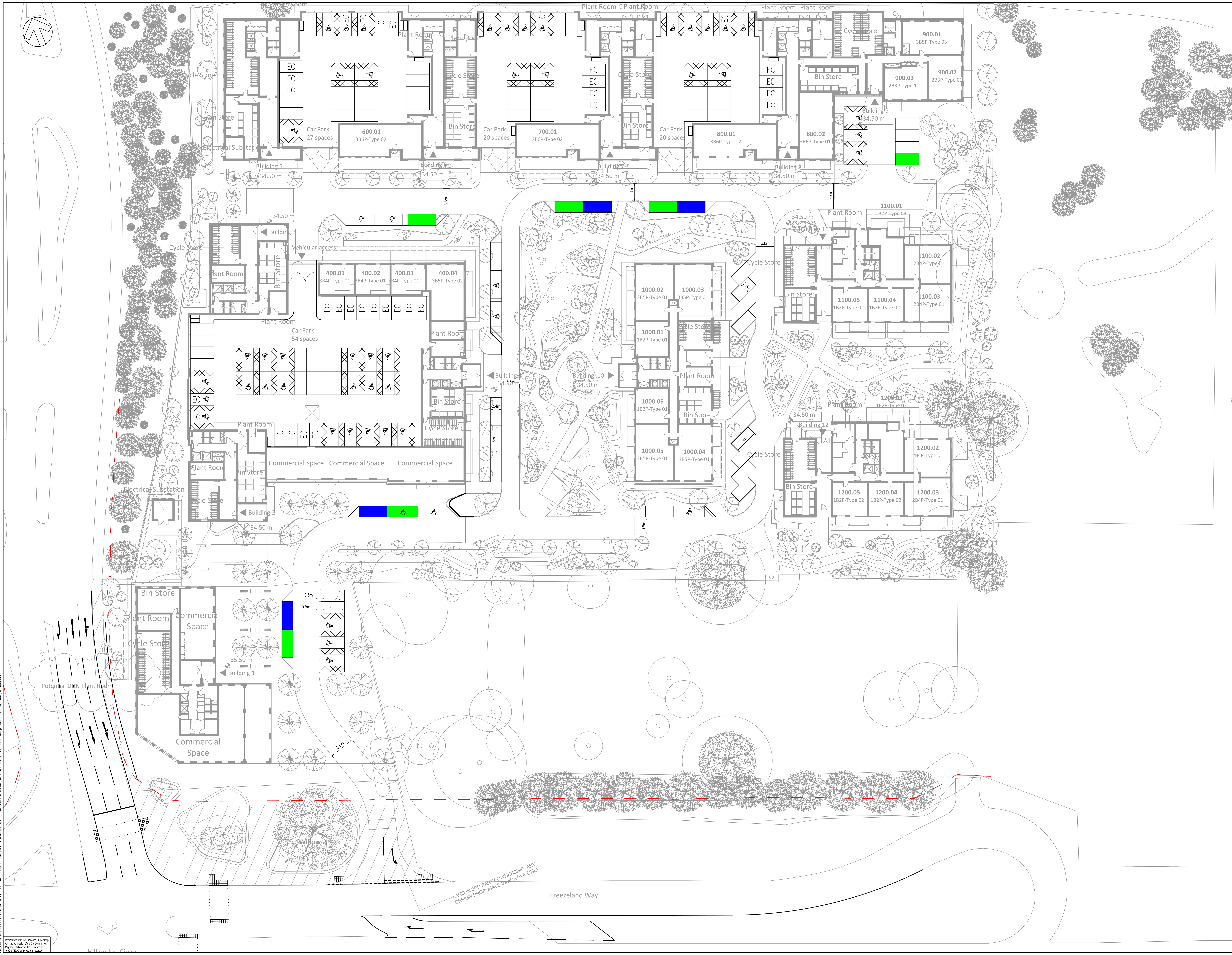
TITLE:

RIGHT-TURN FROM WESTERN AVENUE ONTO LONG LANE (SOUTHBOUND) SWEPT PATH ANALYSIS

FIGURE No:

70057679-TP-SK-17-TR1

File name \\UK.WSPGROUP.COM\CENTRAL DATA\PROJECTS\700576XX\70057679 - HILLINGDON GARDENS\03 WIP\TP TRANSPORT PLANNING\02 CAD BIM MODELS\70057679-TP-SK-17.DWG, printed on 31 July 2020 12:24:32, by Burton, Craig



DO NOT SCALE

PODIUM PARKING COUNT	
BAY TYPE	GROUND LEVEL
STANDARD	65
BLUE BADGE	39
TOTAL RESIDENTIAL	104
COMMERCIAL / VISITOR	0
CAR CLUB	0
MOTORBIKE	13

EXTERNAL PARKING COUNT	
BAY TYPE	GROUND LEVEL
STANDARD	18
BLUE BADGE	13
TOTAL RESIDENTIAL	30
COMMERCIAL / VISITOR STANDARD	5
COMMERCIAL /VISITOR BLUE BADGE	1
CAR CLUB	4
MOTORBIKE	0

TOTAL	
BAY TYPE	GROUND LEVEL
RESIDENT	83
BLUE BADGE	51
TOTAL RESIDENTIAL	134
COMMERCIAL / VISITOR STANDARD	5
COMMERCIAL /VISITOR BLUE BADGE	1
MOTORBIKE	13

CAR CLUB BAYS

VISITOR BAYS

EC ELECTRIC CHARGING BAY

BLUE BADGE PARKING BAY

MOTORCYCLE PARKING BAY

REV	DATE	BY	DESCRIPTION	CHK	APP
B	31/07/2020	MR	MINOR AMENDMENTS	BJS	TJG
A	13/12/2019	HFM	FIRST ISSUE	BJS	TJG

DRAWING STATUS: S0 - WORK IN PROGRESS

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CLIENT: INLAND HOMES

ARCHITECT: COLLADO COLLINS

PROJECT: HILLINGDON GARDENS

TITLE: PROPOSED PARKING ARRANGEMENTS WITH DISABLED PARKING FOR 10% OF RESIDENTIAL DWELLINGS

SCALE @ A0: 1:250	CHECKED: BJS		APPROVED: TJG
PROJECT No: 70057679	DESIGNED: CRJB	DRAWN: HFM	DATE: December 19

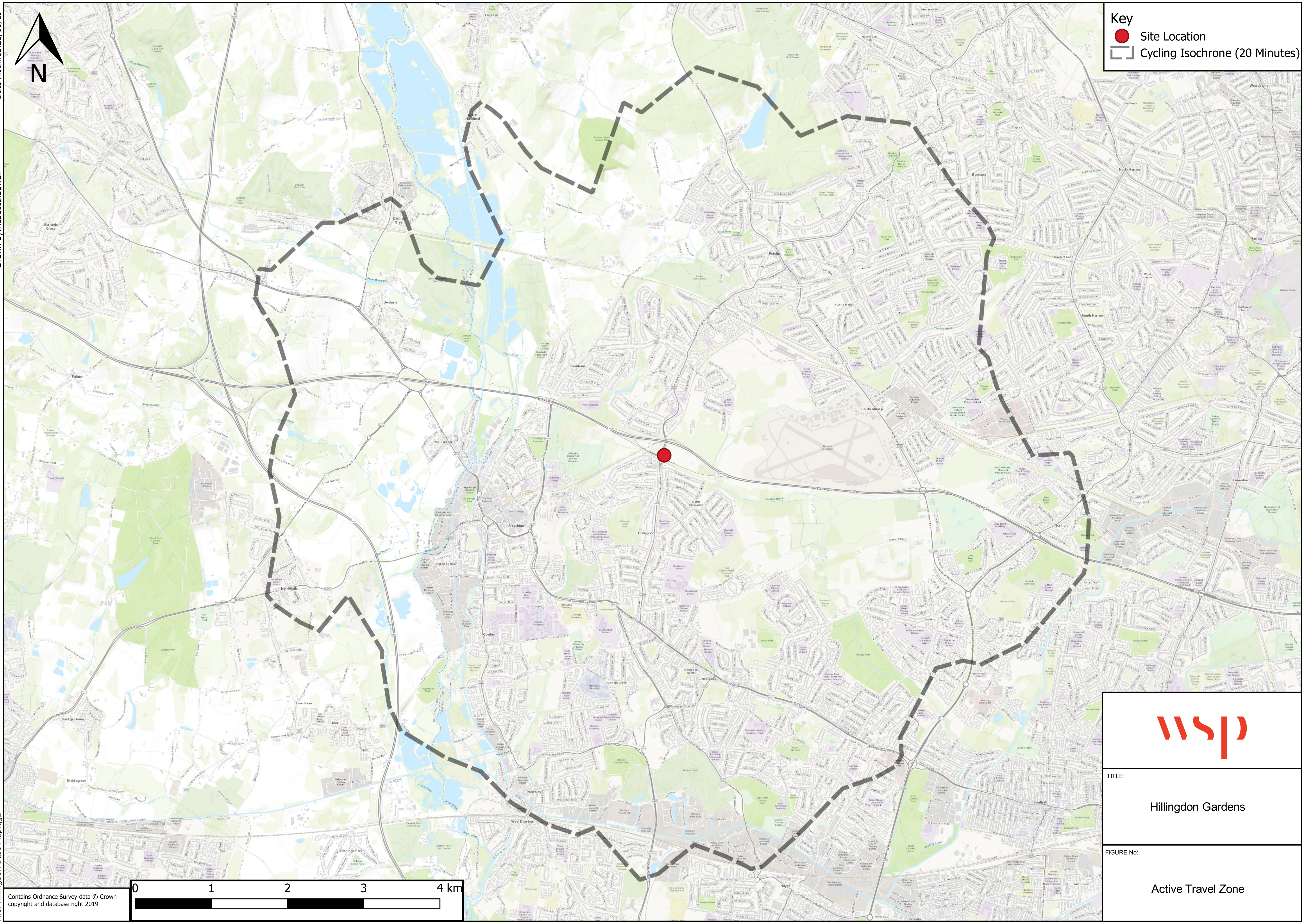
DRAWING No: 70057679-TP-SK-18 REV: B

Appendix I

ACTIVE TRAVEL ZONE PHOTOS AND FIGURES

Date Modified:21/08/19

Drawn By:Rebecca.Sewell



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TITLE:

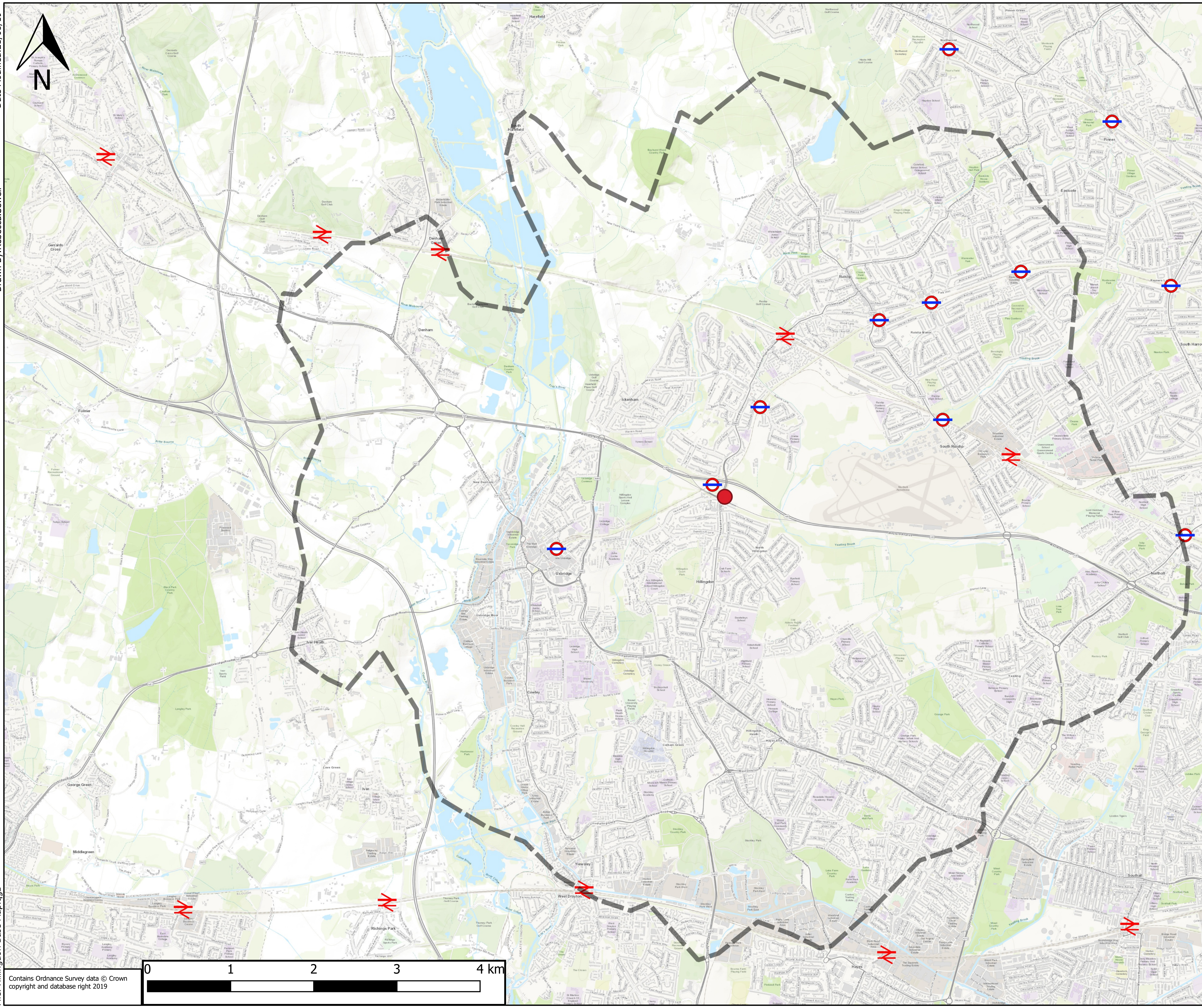
Hillingdon Gardens

FIGURE No:

Active Travel Zone

File: Hillingdon Base Map.qgz

Date Modified:21/08/19
Drawn By:Rebecca.Sewell
File: Hillingdon Base Map.qgz



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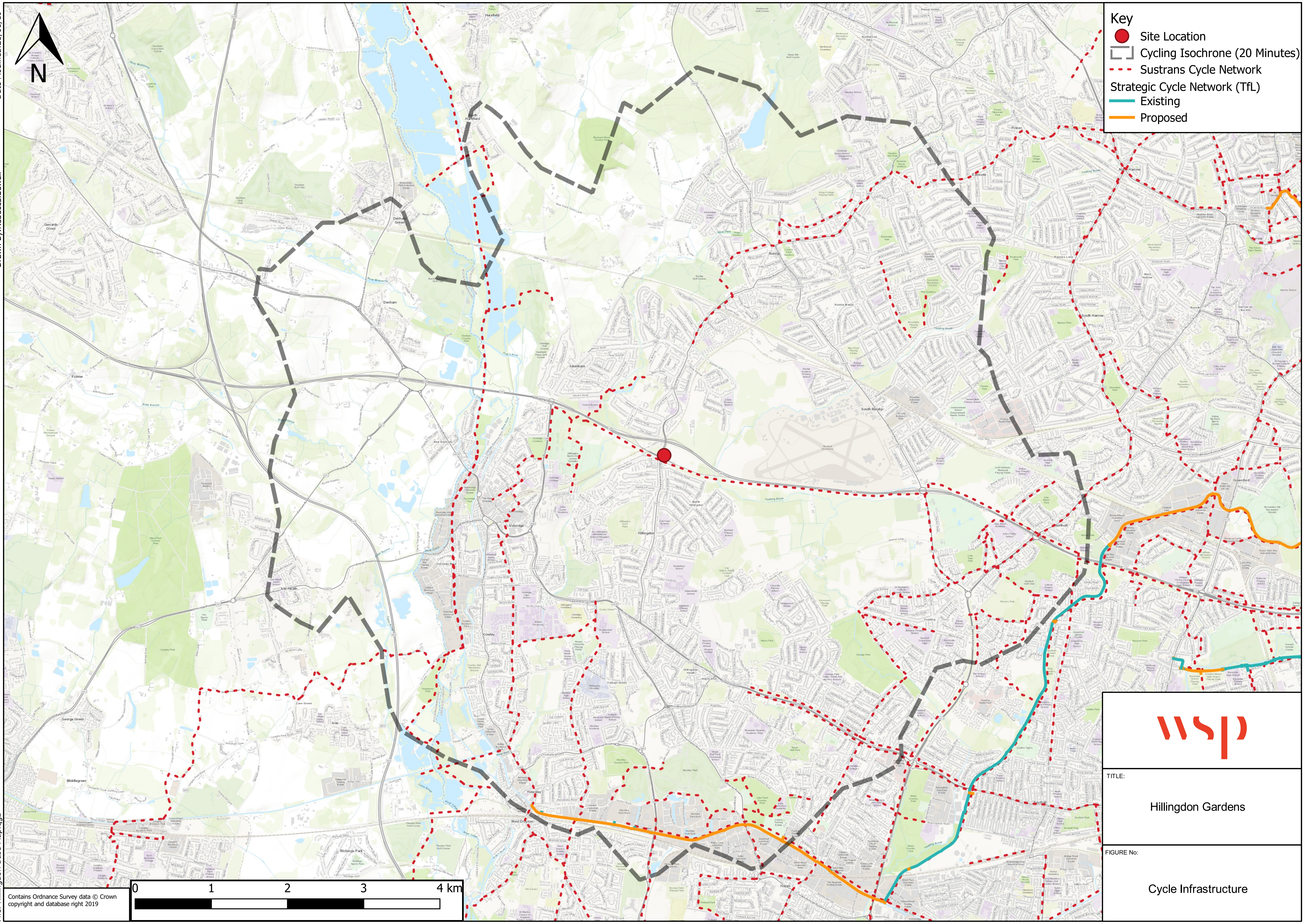
TITLE:

Hillingdon Gardens

FIGURE No:

Public Transport Destinations

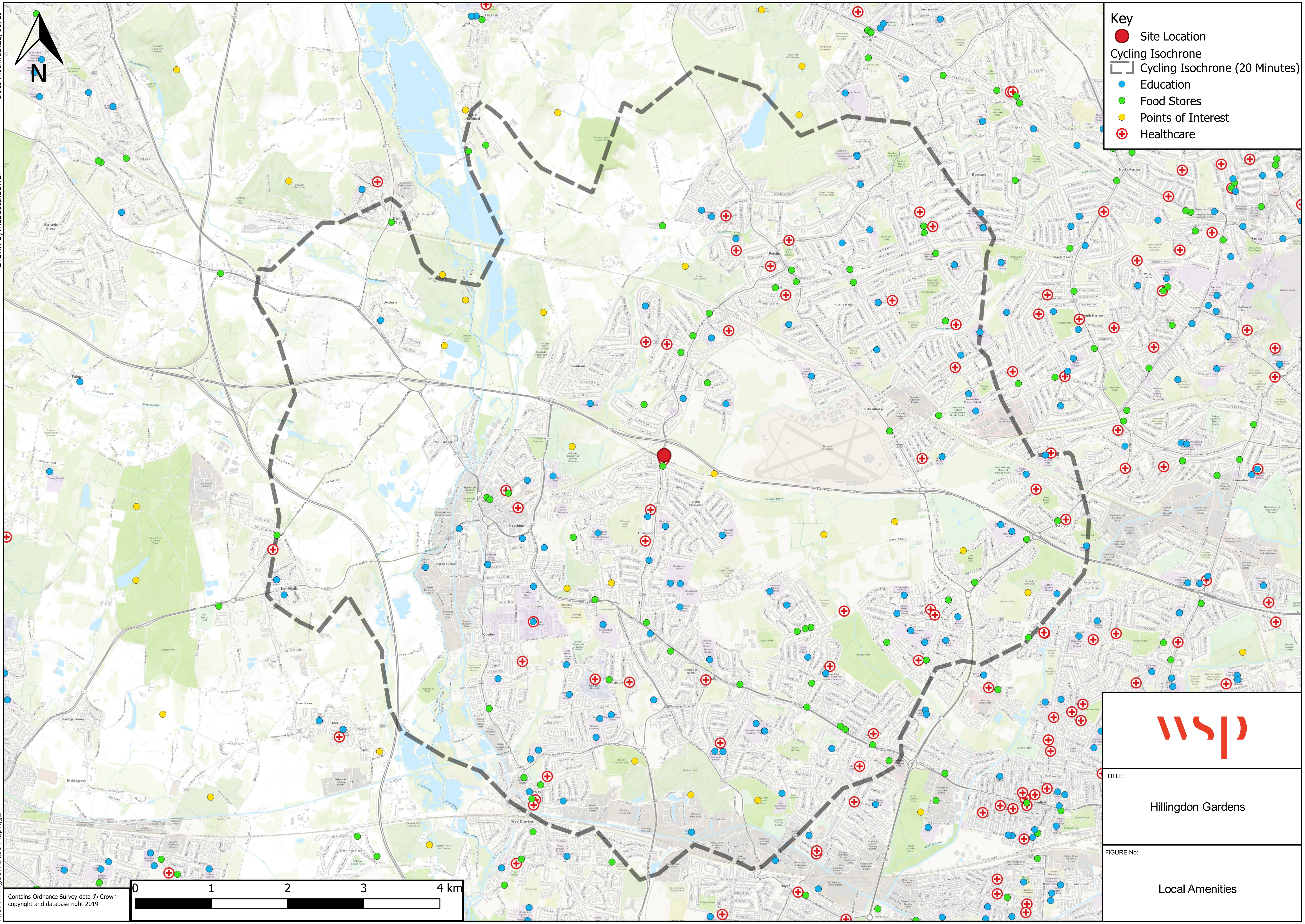
Date Modified:21/08/19
Drawn By:Rebecca.Sewell
File: Hillingdon Base Map.qgz



Date Modified:21/08/19

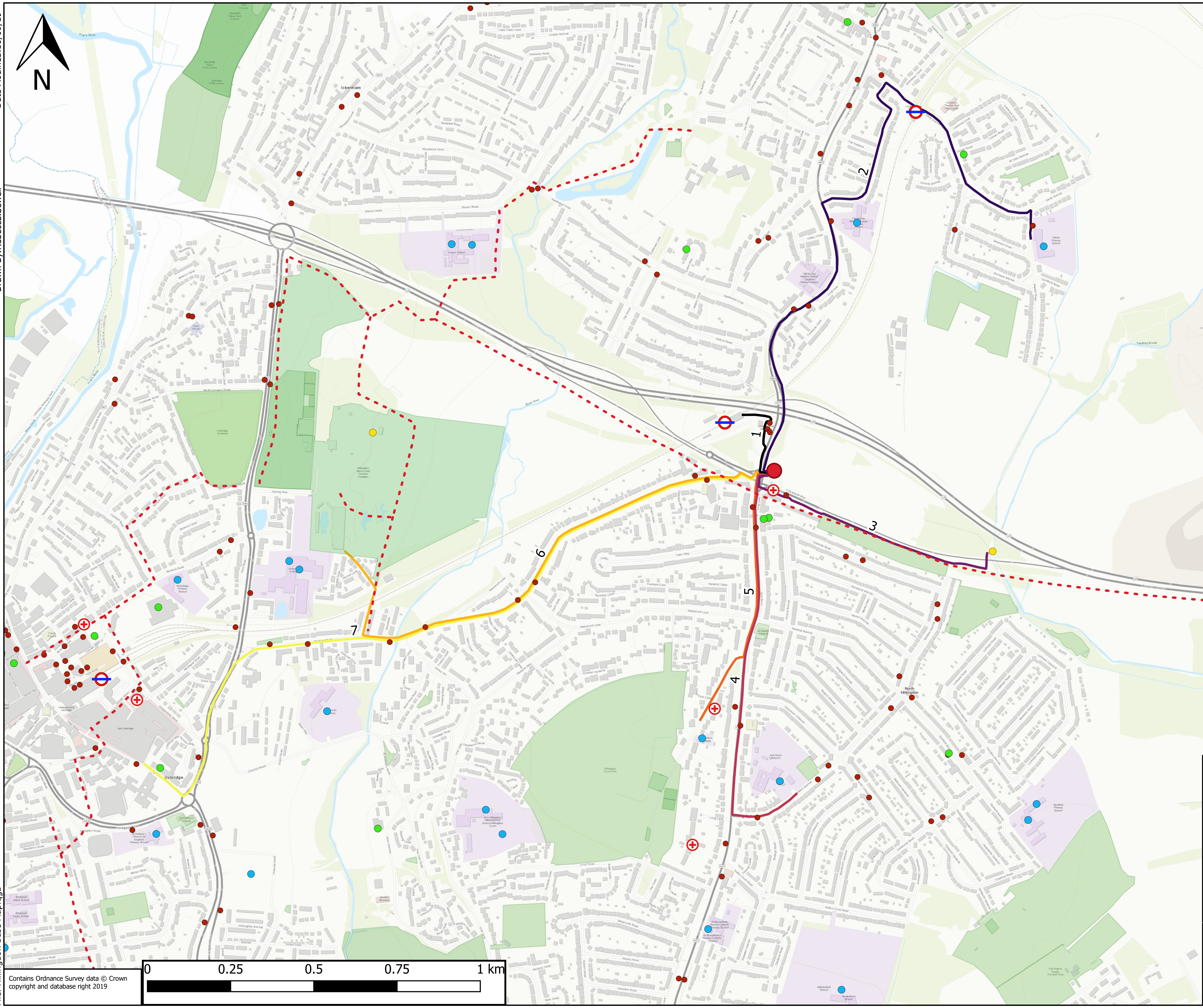
Drawn By:Rebecca.Sewell

File: Hillingdon Base Map.qgz



Date Modified:10/09/19

Drawn By:Rebecca.Sewell



Key

- Site Location
- Route 1
- Route 2
- Route 3
- Route 4
- Route 5
- Route 6
- Route 7
- Education
- Food Stores
- Points of Interest
- Healthcare
- London Underground Stations
- Sustrans Cycle Network
- Bus Stops
- Parks and Outdoor Spaces

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TITLE:

Hillingdon Gardens

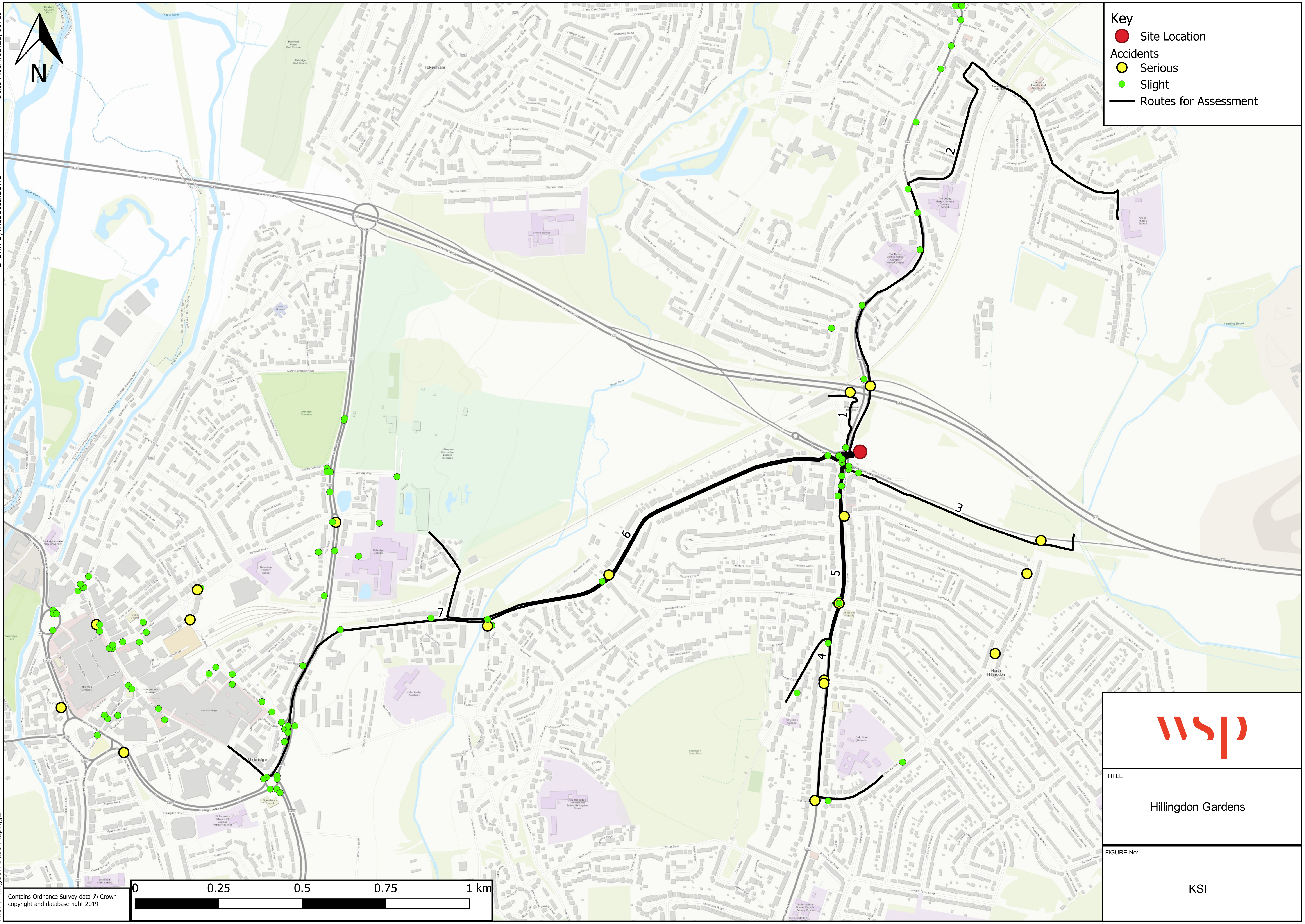
FIGURE No:

Active Travel Zone - Neighbourhood Scale

File: Hillingdon Base Map.qgz

Date Modified:22/08/19

Drawn By:Rebecca.Sewell



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TITLE:

Hillingdon Gardens

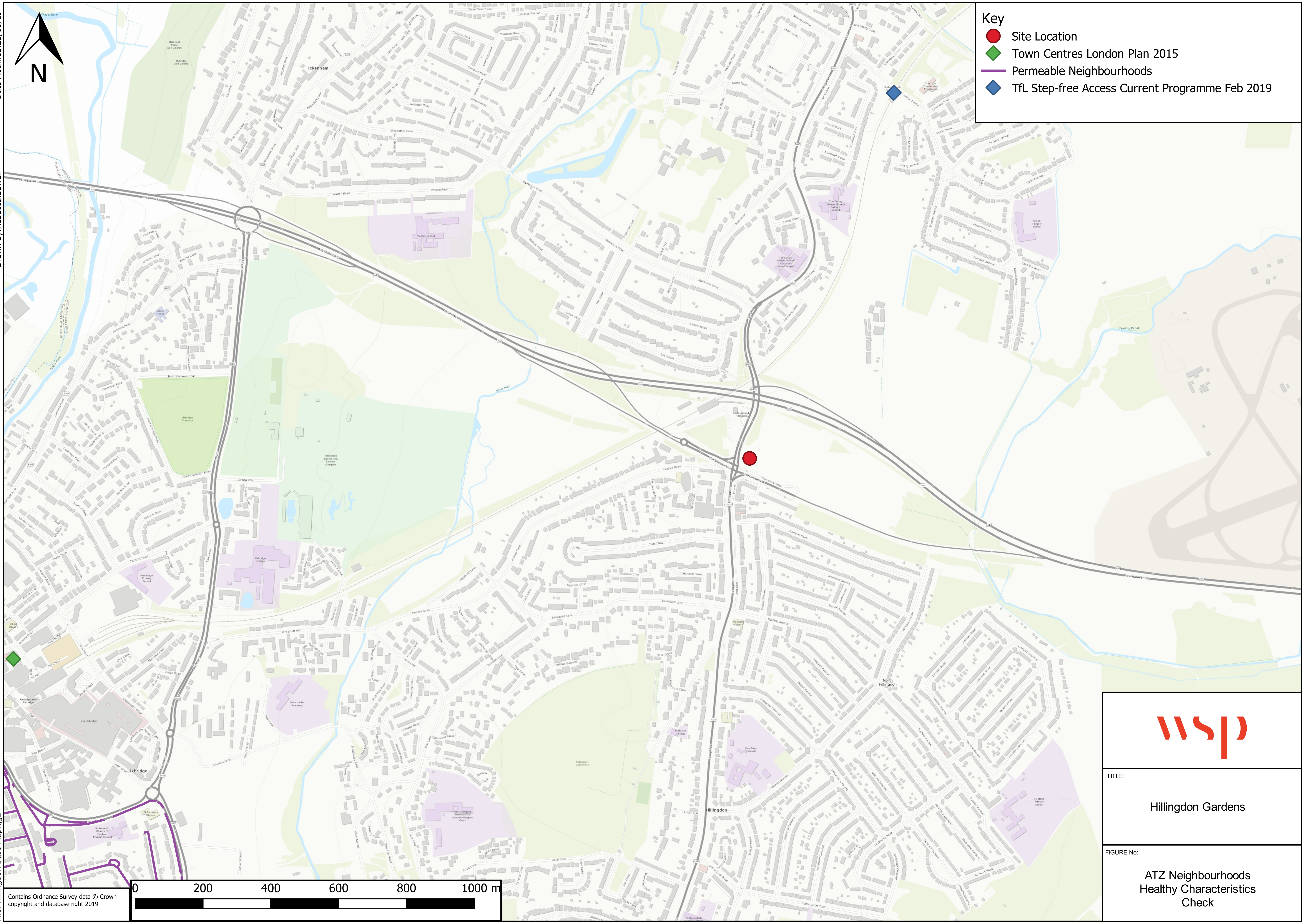
FIGURE No:

KSI

File: Hillingdon Base Map.qgz

Date Modified:21/08/19

Drawn By:Rebecca.Sewell



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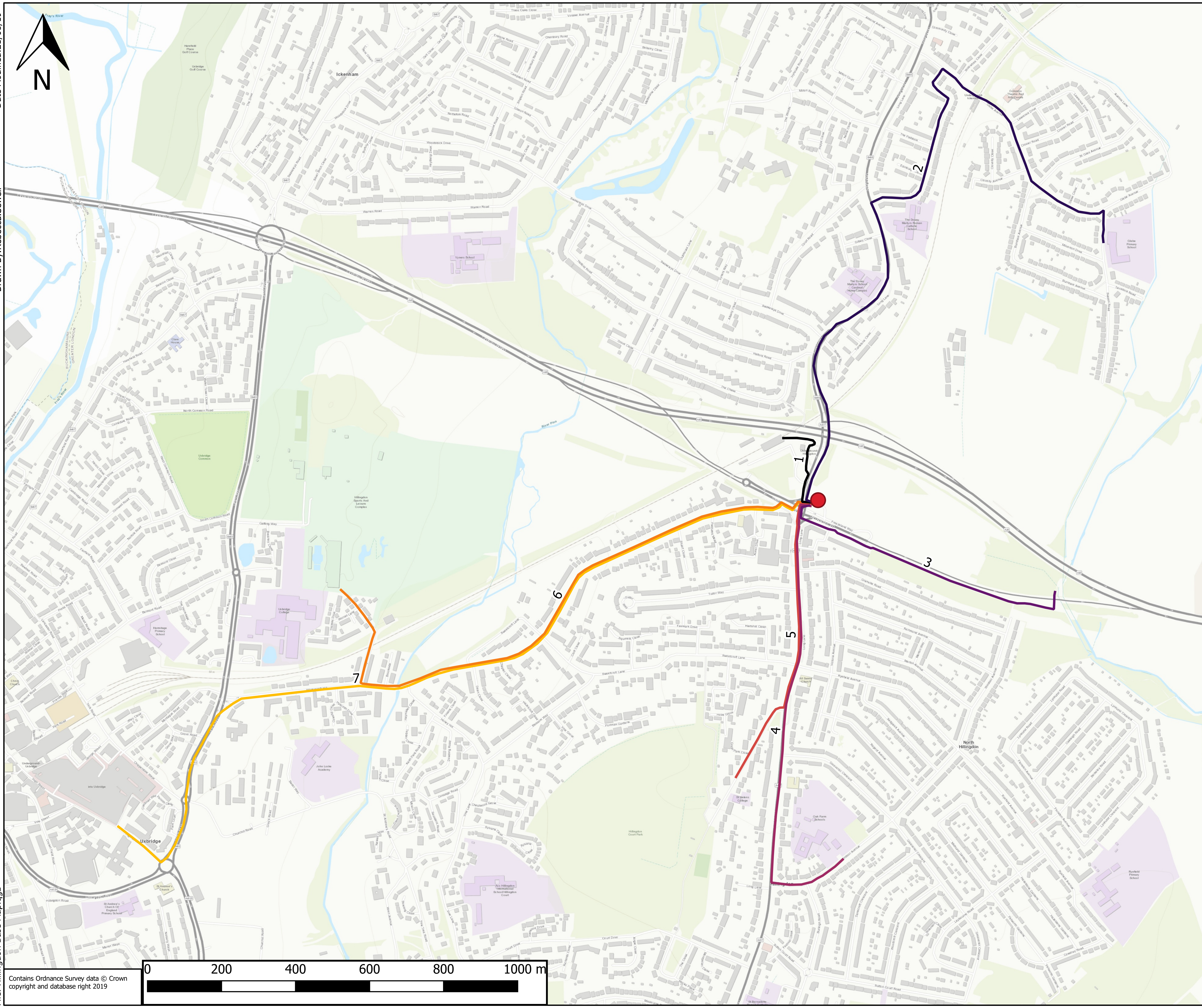


Date Modified:21/08/19

Drawn By:Rebecca.Sewell

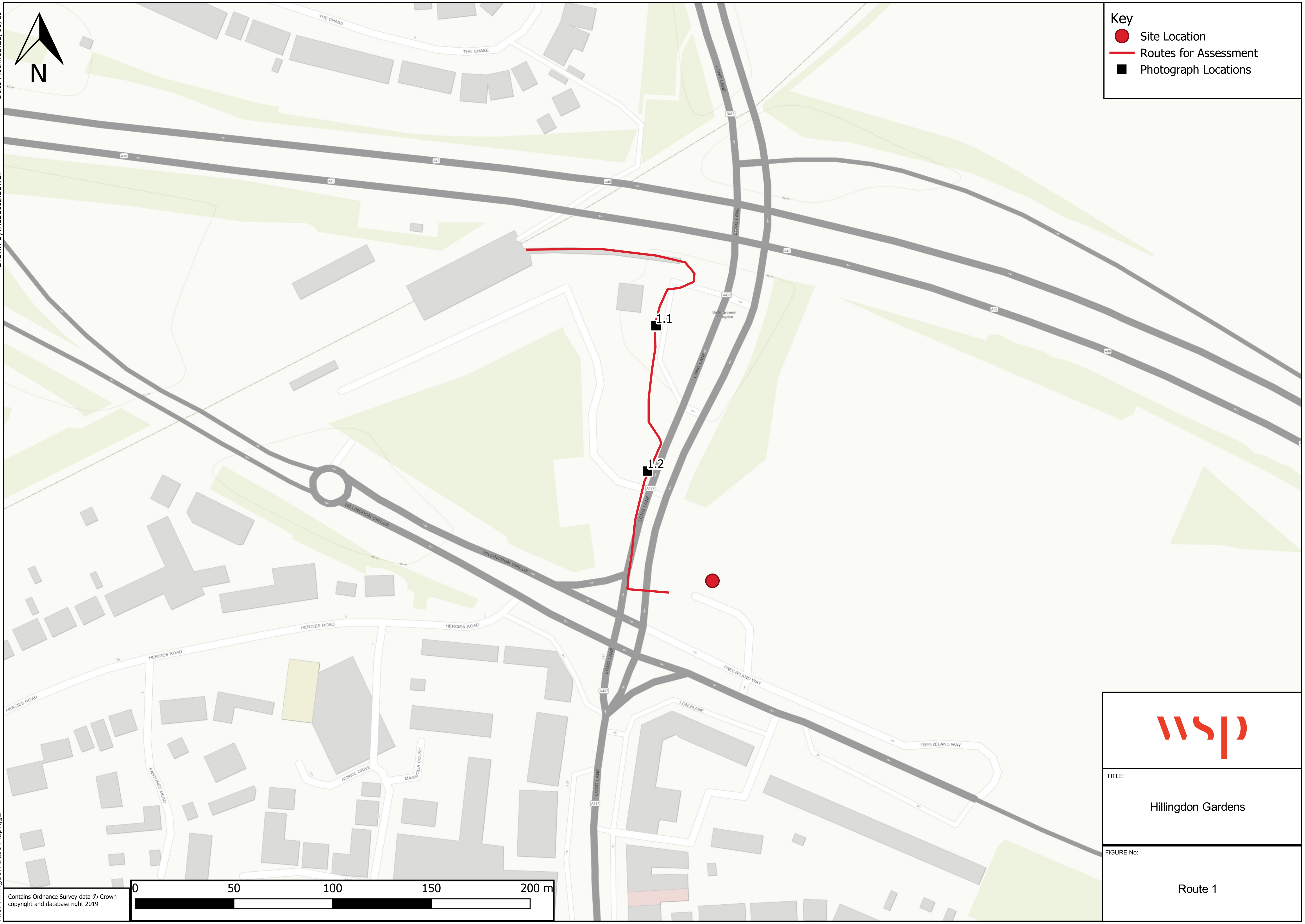
File: Hillingdon Base Map.qgz

TITLE:

Hillingdon Gardens

FIGURE No:

Routes for Assessment



Key

- Site Location
- Routes for Assessment
- Photograph Locations

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TITLE:

Hillingdon Gardens

FIGURE No:

Route 1

Date Modified:21/08/19

Drawn By:Rebecca.Sewell

File: Hillingdon Base Map.qgz

TITLE:

Hillingdon Gardens

FIGURE No:

Route 2

Date Modified:22/08/19

Drawn By:Rebecca.Sewell

File: Hillingdon Base Map.qgz

Date Modified:22/08/19

Drawn By:Rebecca.Sewell

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TITLE:

Hillingdon Gardens

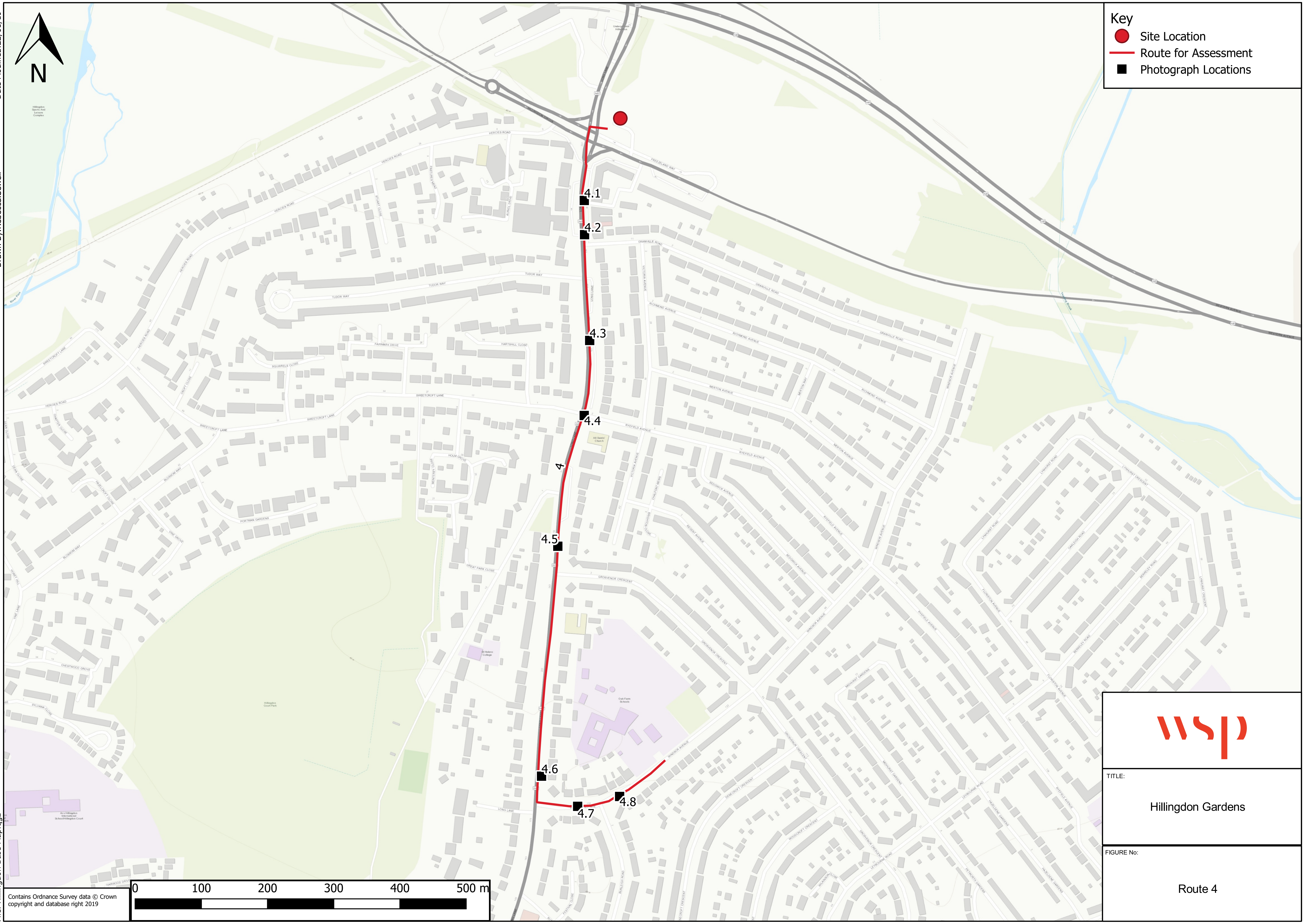
FIGURE No:

Route 3

File: Hillingdon Base Map.qgz

Date Modified:22/08/19

Drawn By:Rebecca.Sewell



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TITLE:

Hillingdon Gardens

FIGURE No:

Route 4

File: Hillingdon Base Map.qgz

Date Modified:22/08/19

Drawn By:Rebecca.Sewell

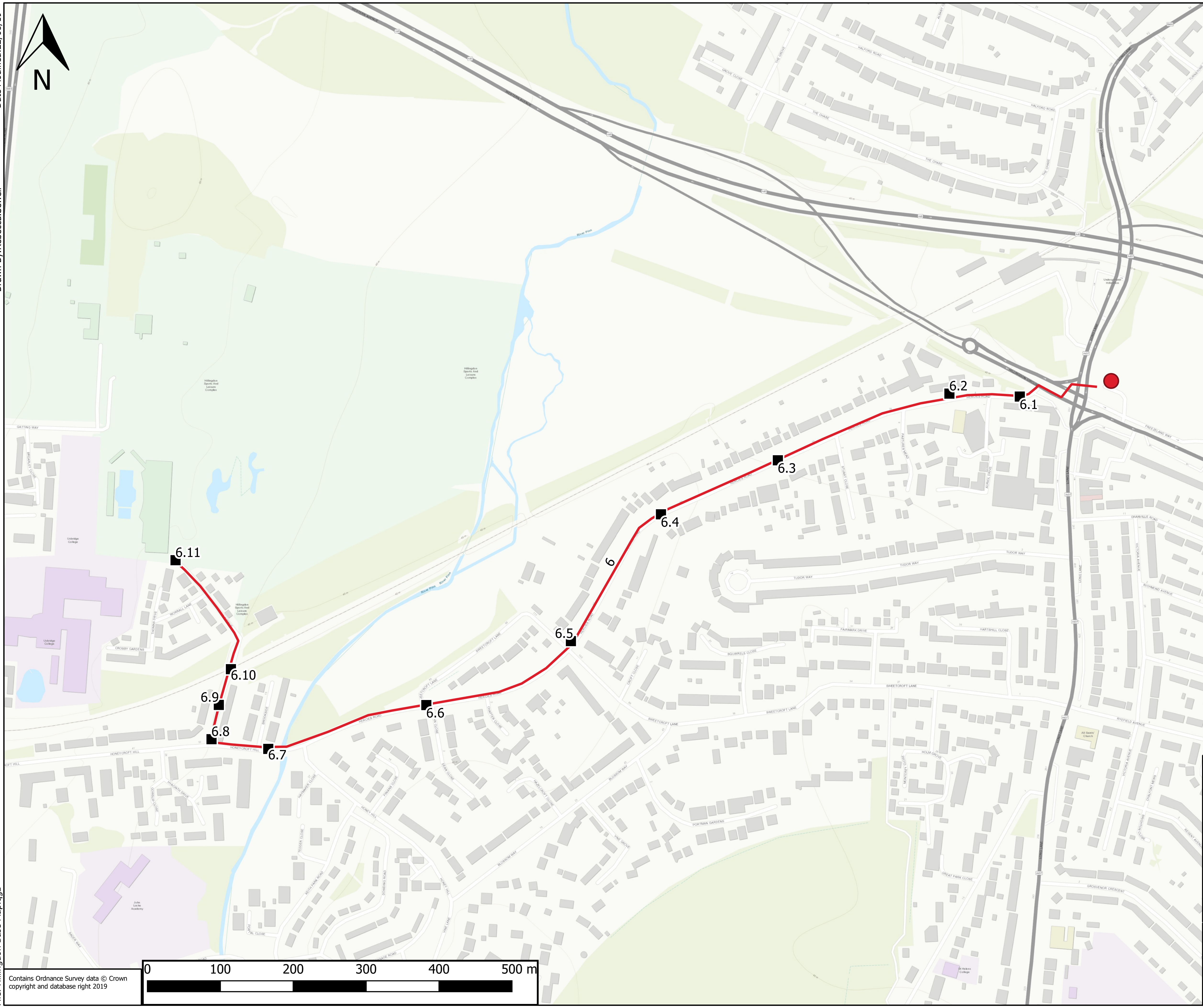
File: Hillingdon Base Map.qgz

TITLE:

Hillingdon Gardens

FIGURE No:

Route 5



Date Modified:22/08/19

Drawn By:Rebecca.Sewell

File: Hillingdon Base Map.qgz

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TITLE:

Hillingdon Gardens

FIGURE No:

Route 6

Date Modified:22/08/19

Drawn By:Rebecca.Sewell

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TITLE:

Hillingdon Gardens

FIGURE No:

Route 7

File: Hillingdon Base Map.qgz


.1
1.2
2.1
2.2
.3
2.4
2.5
2.6


7


2.8


2.9


2.10


11

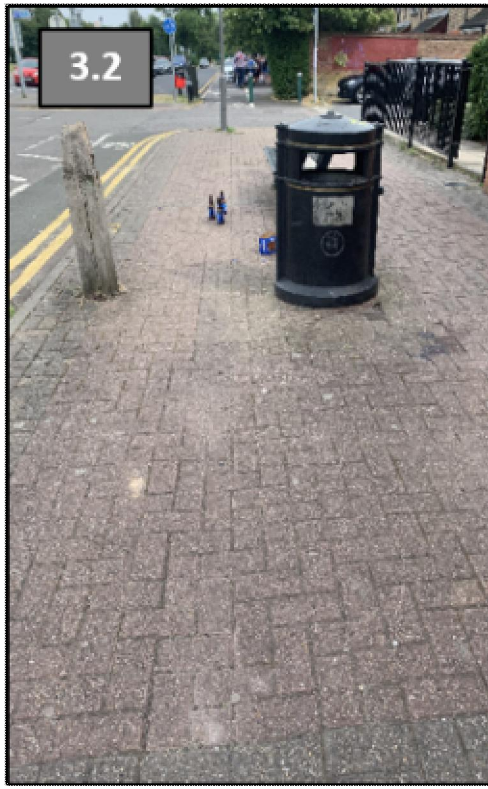

2.12


2.13


2.14


.15

2.16

3.1

3.2


3.4

4.1

4.2


.3


4.4


4.5


4.6


4.7


4.8


5.1


5.2


3


5.4


5.5


5.6


.7


5.8


5.9


6.1


.2


6.3

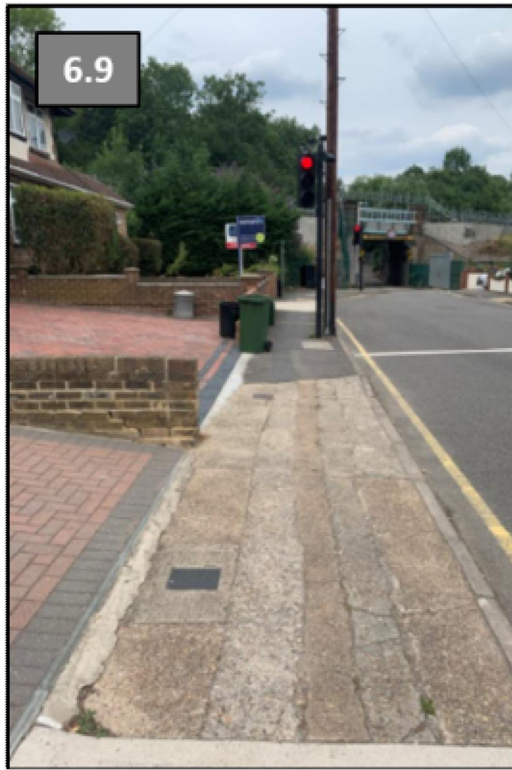

6.4


6.5


.6


6.7
Bunker


6.8


6.9


10
6.11
7.1
7.2
.3
7.4
7.5
7.6


7.7


7.8


7.9

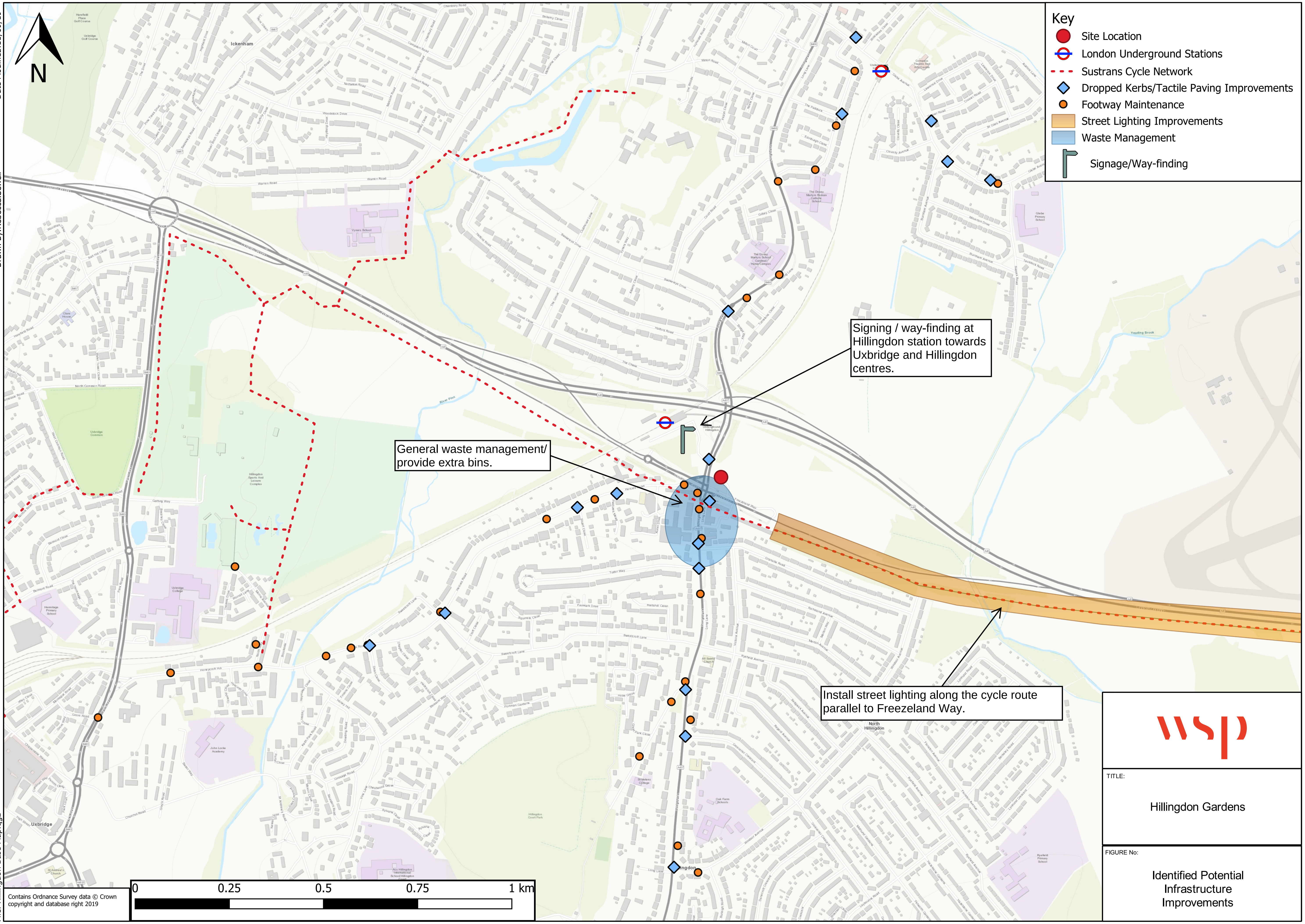

7.10

7.11


7.12


7.13

Date Modified:11/09/19
Drawn By:Rebecca.Sewell



File: Hillingdon Base Map.qgz

Appendix J

TRIP GENERATION

Public

TRICS 7.6.1
Trip Rate P Number of dwellings

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use 03 - RESIDENTIAL
Category M - MIXED PRIVATE/AFFORDABLE HOUSING
MULTI-MODAL VEHICLES

Selected regions and areas:
1 GREATER LONDON
EG EALING 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 Rang 143 to 143 (units:)
Range Sele 40 to 1751 (units:)

Public Transport Provision:
Selection b Include all surveys

Date Range 01/01/11 to 22/11/18

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.
Selected survey days:
Wednesday 1 days
This data displays the number of selected surveys by day of the week.

Selected survey types:
Manual cou 1 days
Directional 0 days
This data d the total a whilst ATC surveys are undertaking using machines.

Selected Locations:

Town Centr	0
Edge of Tov	0
Suburban A	0
Edge of Tov	0
Neighbourh	1
Free Standi	0
Not Known	0

This data d Edge of To Suburban A Neighbour Edge of To Town Centre and Not Known.

Selected Location Sub Categories:

Industrial Z	0
Commercia	0
Developme	0
Residential	1
Retail Zone	0
Built-Up Zo	0
Village	0
Out of Tow	0
High Street	0
No Sub Cat	0

This data d Industrial Z Developme Residentia Retail Zone Built-Up Zo Village Out of Tow High Street and No Sub Category.

Secondary Filtering selection:

Use Class:
C3 1 days
This data d which can be found within the Library module of TRICS®.

Population within 1 mile:
25,001 to 5 1 days
This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:
500,001 or 1 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
This data d within a radius of 5-miles of selected survey sites.

Travel Plan:
Yes 1 days
This data d and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:
3 Moderate 1 days
This data displays the number of selected surveys with PTAL Ratings.

LIST OF SITES relevant to selection parameters
1 EG-03-M-0 BLOCKS OF EALING
FEATHERSTONE ROAD

SOUTHALL
Neighbourhood Centre (PPS6 Local Centre)

Residential Zone
Total Number of dwelli 143
Survey date WEDNESDA ######### Survey Type MANUAL

This sectior it displays the selecte the day of and whether the survey was a manual classified count or an ATC count.

Manually Deselected Sites

Site Ref	Reason for Deselection
BN-03-M-0	location
BT-03-M-0:	location
BT-03-M-0:	location
BT-03-M-0:	location
EG-03-M-0	location
EG-03-M-0	location
EN-03-M-0	location
GR-03-M-0	location
GR-03-M-0	location
HD-03-M-0	location
HD-03-M-0	location
HM-03-M-(	location
HO-03-M-C	location
RD-03-M-0	location
SK-03-M-0:	location

TRIP RATE for Land Use 03 - RESIDENTIAL/M - MIXED PRIVATE/AFFORDABLE HOUSING
Calculation Factor: 1 DWELLS
Count Type: VEHICLES

			ARRIVALS			DEPARTURES			TOTALS
	No.	Ave.	Trip	No.	Ave.	Trip	No.	Ave.	Trip
Time Range	Days	DWELLS	Rate	Days	DWELLS	Rate	Days	DWELLS	Rate
00:00-01:00									
01:00-02:00									
02:00-03:00									
03:00-04:00									
04:00-05:00									
05:00-06:00									
06:00-07:00									
07:00-08:0	1	143	0.035	1	143	0.098	1	143	0.133
08:00-09:0	1	143	0.077	1	143	0.231	1	143	0.308
09:00-10:0	1	143	0.056	1	143	0.063	1	143	0.119
10:00-11:0	1	143	0.056	1	143	0.056	1	143	0.112
11:00-12:0	1	143	0.091	1	143	0.112	1	143	0.203
12:00-13:0	1	143	0.112	1	143	0.119	1	143	0.231
13:00-14:0	1	143	0.084	1	143	0.063	1	143	0.147
14:00-15:0	1	143	0.084	1	143	0.077	1	143	0.161
15:00-16:0	1	143	0.098	1	143	0.112	1	143	0.21
16:00-17:0	1	143	0.091	1	143	0.098	1	143	0.189
17:00-18:0	1	143	0.112	1	143	0.042	1	143	0.154
18:00-19:0	1	143	0.105	1	143	0.077	1	143	0.182
19:00-20:0	1	143	0.126	1	143	0.07	1	143	0.196
20:00-21:0	1	143	0.077	1	143	0.056	1	143	0.133
21:00-22:00									
22:00-23:00									
23:00-24:00									
Daily Trip Rates:			1.204			1.274			2.478

TRIP RATE for Land Use 03 - RESIDENTIAL/M - MIXED PRIVATE/AFFORDABLE HOUSING
Calculation Factor: 1 DWELLS
Count Type: TAXIS

			ARRIVALS			DEPARTURES			TOTALS
	No.	Ave.	Trip	No.	Ave.	Trip	No.	Ave.	Trip
Time Range	Days	DWELLS	Rate	Days	DWELLS	Rate	Days	DWELLS	Rate
00:00-01:00									
01:00-02:00									
02:00-03:00									
03:00-04:00									
04:00-05:00									
05:00-06:00									
06:00-07:00									
07:00-08:0	1	143	0.007	1	143	0.007	1	143	0.014
08:00-09:0	1	143	0	1	143	0	1	143	0
09:00-10:0	1	143	0	1	143	0	1	143	0
10:00-11:0	1	143	0	1	143	0	1	143	0
11:00-12:0	1	143	0.007	1	143	0.007	1	143	0.014
12:00-13:0	1	143	0	1	143	0	1	143	0
13:00-14:0	1	143	0	1	143	0	1	143	0
14:00-15:0	1	143	0	1	143	0	1	143	0
15:00-16:0	1	143	0	1	143	0	1	143	0
16:00-17:0	1	143	0.007	1	143	0.007	1	143	0.014
17:00-18:0	1	143	0	1	143	0	1	143	0
18:00-19:0	1	143	0	1	143	0	1	143	0
19:00-20:0	1	143	0.007	1	143	0.007	1	143	0.014
20:00-21:0	1	143	0.007	1	143	0.007	1	143	0.014
21:00-22:00									
22:00-23:00									
23:00-24:00									
Daily Trip Rates:			0.035			0.035			0.07

TRIP RATE for Land Use 03 - RESIDENTIAL/M - MIXED PRIVATE/AFFORDABLE HOUSING
Calculation Factor: 1 DWELLS
Count Type: OGVS

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	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									
07:00-08:0	1	143	0	1	143	0	1	143	0
08:00-09:0	1	143	0.014	1	143	0.014	1	143	0.028
09:00-10:0	1	143	0	1	143	0	1	143	0
10:00-11:0	1	143	0	1	143	0	1	143	0
11:00-12:0	1	143	0	1	143	0	1	143	0
12:00-13:0	1	143	0	1	143	0	1	143	0
13:00-14:0	1	143	0	1	143	0	1	143	0
14:00-15:0	1	143	0	1	143	0	1	143	0
15:00-16:0	1	143	0	1	143	0	1	143	0
16:00-17:0	1	143	0	1	143	0	1	143	0
17:00-18:0	1	143	0	1	143	0	1	143	0
18:00-19:0	1	143	0	1	143	0	1	143	0
19:00-20:0	1	143	0	1	143	0	1	143	0
20:00-21:0	1	143	0	1	143	0	1	143	0
21:00-22:00									
22:00-23:00									
23:00-24:00									
Daily Trip Rates:			0.014			0.014			0.028

TRIP RATE for Land Use 03 - RESIDENTIAL/M - MIXED PRIVATE/AFFORDABLE HOUSING
Calculation Factor: 1 DWELLS
Count Type: CYCLISTS

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	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									
07:00-08:0	1	143	0	1	143	0.007	1	143	0.007
08:00-09:0	1	143	0	1	143	0.014	1	143	0.014
09:00-10:0	1	143	0.007	1	143	0	1	143	0.007
10:00-11:0	1	143	0	1	143	0.007	1	143	0.007
11:00-12:0	1	143	0.007	1	143	0.007	1	143	0.014
12:00-13:0	1	143	0.007	1	143	0.007	1	143	0.014
13:00-14:0	1	143	0.007	1	143	0	1	143	0.007
14:00-15:0	1	143	0.014	1	143	0.007	1	143	0.021
15:00-16:0	1	143	0	1	143	0	1	143	0
16:00-17:0	1	143	0	1	143	0	1	143	0
17:00-18:0	1	143	0.007	1	143	0	1	143	0.007
18:00-19:0	1	143	0.007	1	143	0	1	143	0.007
19:00-20:0	1	143	0.007	1	143	0.007	1	143	0.014
20:00-21:0	1	143	0.007	1	143	0.007	1	143	0.014
21:00-22:00									
22:00-23:00									
23:00-24:00									
Daily Trip Rates:			0.07			0.063			0.133

TRIP RATE for Land Use 03 - RESIDENTIAL/M - MIXED PRIVATE/AFFORDABLE HOUSING
Calculation Factor: 1 DWELLS
Count Type: VEHICLE OCCUPANTS

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	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									
07:00-08:0	1	143	0.042	1	143	0.147	1	143	0.189
08:00-09:0	1	143	0.119	1	143	0.329	1	143	0.448
09:00-10:0	1	143	0.063	1	143	0.084	1	143	0.147
10:00-11:0	1	143	0.077	1	143	0.063	1	143	0.14
11:00-12:0	1	143	0.119	1	143	0.154	1	143	0.273
12:00-13:0	1	143	0.147	1	143	0.161	1	143	0.308
13:00-14:0	1	143	0.105	1	143	0.098	1	143	0.203
14:00-15:0	1	143	0.105	1	143	0.105	1	143	0.21
15:00-16:0	1	143	0.154	1	143	0.168	1	143	0.322
16:00-17:0	1	143	0.147	1	143	0.112	1	143	0.259
17:00-18:0	1	143	0.182	1	143	0.056	1	143	0.238
18:00-19:0	1	143	0.126	1	143	0.14	1	143	0.266

19:00-20:0	1	143	0.203	1	143	0.084	1	143	0.287
20:00-21:0	1	143	0.14	1	143	0.119	1	143	0.259
21:00-22:00									
22:00-23:00									
23:00-24:00									
Daily Trip Rates:			1.729			1.82			3.549

TRIP RATE for Land Use 03 - RESIDENTIAL/M - MIXED PRIVATE/AFFORDABLE HOUSING
Calculation Factor: 1 DWELLS
Count Type: PEDESTRIANS

			ARRIVALS			DEPARTURES			TOTALS
	No.	Ave.	Trip	No.	Ave.	Trip	No.	Ave.	Trip
Time Range	Days	DWELLS	Rate	Days	DWELLS	Rate	Days	DWELLS	Rate
00:00-01:00									
01:00-02:00									
02:00-03:00									
03:00-04:00									
04:00-05:00									
05:00-06:00									
06:00-07:00									
07:00-08:0	1	143	0.014	1	143	0.014	1	143	0.028
08:00-09:0	1	143	0.063	1	143	0.231	1	143	0.294
09:00-10:0	1	143	0.063	1	143	0.063	1	143	0.126
10:00-11:0	1	143	0.063	1	143	0.035	1	143	0.098
11:00-12:0	1	143	0.049	1	143	0.084	1	143	0.133
12:00-13:0	1	143	0.098	1	143	0.091	1	143	0.189
13:00-14:0	1	143	0.133	1	143	0.056	1	143	0.189
14:00-15:0	1	143	0.063	1	143	0.119	1	143	0.182
15:00-16:0	1	143	0.147	1	143	0.112	1	143	0.259
16:00-17:0	1	143	0.077	1	143	0.063	1	143	0.14
17:00-18:0	1	143	0.056	1	143	0.105	1	143	0.161
18:00-19:0	1	143	0.091	1	143	0.112	1	143	0.203
19:00-20:0	1	143	0.182	1	143	0.147	1	143	0.329
20:00-21:0	1	143	0.112	1	143	0.084	1	143	0.196
21:00-22:00									
22:00-23:00									
23:00-24:00									
Daily Trip Rates:			1.211			1.316			2.527

TRIP RATE for Land Use 03 - RESIDENTIAL/M - MIXED PRIVATE/AFFORDABLE HOUSING
Calculation Factor: 1 DWELLS
Count Type: BUS/TRAM PASSENGERS

			ARRIVALS			DEPARTURES			TOTALS
	No.	Ave.	Trip	No.	Ave.	Trip	No.	Ave.	Trip
Time Range	Days	DWELLS	Rate	Days	DWELLS	Rate	Days	DWELLS	Rate
00:00-01:00									
01:00-02:00									
02:00-03:00									
03:00-04:00									
04:00-05:00									
05:00-06:00									
06:00-07:00									
07:00-08:0	1	143	0	1	143	0.042	1	143	0.042
08:00-09:0	1	143	0	1	143	0.084	1	143	0.084
09:00-10:0	1	143	0.014	1	143	0.021	1	143	0.035
10:00-11:0	1	143	0.007	1	143	0.021	1	143	0.028
11:00-12:0	1	143	0.021	1	143	0.042	1	143	0.063
12:00-13:0	1	143	0.007	1	143	0.049	1	143	0.056
13:00-14:0	1	143	0.007	1	143	0.007	1	143	0.014
14:00-15:0	1	143	0.007	1	143	0.014	1	143	0.021
15:00-16:0	1	143	0.049	1	143	0.007	1	143	0.056
16:00-17:0	1	143	0.042	1	143	0.028	1	143	0.07
17:00-18:0	1	143	0.007	1	143	0.014	1	143	0.021
18:00-19:0	1	143	0.035	1	143	0.028	1	143	0.063
19:00-20:0	1	143	0.042	1	143	0.007	1	143	0.049
20:00-21:0	1	143	0.021	1	143	0	1	143	0.021
21:00-22:00									
22:00-23:00									
23:00-24:00									
Daily Trip Rates:			0.259			0.364			0.623

TRIP RATE for Land Use 03 - RESIDENTIAL/M - MIXED PRIVATE/AFFORDABLE HOUSING
Calculation Factor: 1 DWELLS
Count Type: TOTAL RAIL PASSENGERS

			ARRIVALS			DEPARTURES			TOTALS
	No.	Ave.	Trip	No.	Ave.	Trip	No.	Ave.	Trip
Time Range	Days	DWELLS	Rate	Days	DWELLS	Rate	Days	DWELLS	Rate
00:00-01:00									
01:00-02:00									
02:00-03:00									
03:00-04:00									
04:00-05:00									
05:00-06:00									
06:00-07:00									
07:00-08:0	1	143	0	1	143	0.035	1	143	0.035
08:00-09:0	1	143	0.007	1	143	0.084	1	143	0.091
09:00-10:0	1	143	0.007	1	143	0.021	1	143	0.028
10:00-11:0	1	143	0	1	143	0.014	1	143	0.014
11:00-12:0	1	143	0.021	1	143	0.021	1	143	0.042

12:00-13:0	1	143	0.007	1	143	0.014	1	143	0.021
13:00-14:0	1	143	0.021	1	143	0.028	1	143	0.049
14:00-15:0	1	143	0.021	1	143	0.007	1	143	0.028
15:00-16:0	1	143	0.028	1	143	0	1	143	0.028
16:00-17:0	1	143	0.014	1	143	0.014	1	143	0.028
17:00-18:0	1	143	0.007	1	143	0.028	1	143	0.035
18:00-19:0	1	143	0.063	1	143	0.021	1	143	0.084
19:00-20:0	1	143	0.063	1	143	0	1	143	0.063
20:00-21:0	1	143	0	1	143	0	1	143	0
21:00-22:00									
22:00-23:00									
23:00-24:00									
Daily Trip Rates:			0.259			0.287			0.546

TRIP RATE for Land Use 03 - RESIDENTIAL/M - MIXED PRIVATE/AFFORDABLE HOUSING
Calculation Factor: 1 DWELLS
Count Type: PUBLIC TRANSPORT USERS

			ARRIVALS			DEPARTURES			TOTALS
	No.	Ave.	Trip	No.	Ave.	Trip	No.	Ave.	Trip
Time Range	Days	DWELLS	Rate	Days	DWELLS	Rate	Days	DWELLS	Rate
00:00-01:00									
01:00-02:00									
02:00-03:00									
03:00-04:00									
04:00-05:00									
05:00-06:00									
06:00-07:00									
07:00-08:0	1	143	0	1	143	0.077	1	143	0.077
08:00-09:0	1	143	0.007	1	143	0.168	1	143	0.175
09:00-10:0	1	143	0.021	1	143	0.042	1	143	0.063
10:00-11:0	1	143	0.007	1	143	0.035	1	143	0.042
11:00-12:0	1	143	0.042	1	143	0.063	1	143	0.105
12:00-13:0	1	143	0.014	1	143	0.063	1	143	0.077
13:00-14:0	1	143	0.028	1	143	0.035	1	143	0.063
14:00-15:0	1	143	0.028	1	143	0.021	1	143	0.049
15:00-16:0	1	143	0.077	1	143	0.007	1	143	0.084
16:00-17:0	1	143	0.056	1	143	0.042	1	143	0.098
17:00-18:0	1	143	0.014	1	143	0.042	1	143	0.056
18:00-19:0	1	143	0.098	1	143	0.049	1	143	0.147
19:00-20:0	1	143	0.105	1	143	0.007	1	143	0.112
20:00-21:0	1	143	0.021	1	143	0	1	143	0.021
21:00-22:00									
22:00-23:00									
23:00-24:00									
Daily Trip Rates:			0.518			0.651			1.169

TRIP RATE for Land Use 03 - RESIDENTIAL/M - MIXED PRIVATE/AFFORDABLE HOUSING
Calculation Factor: 1 DWELLS
Count Type: TOTAL PEOPLE

			ARRIVALS			DEPARTURES			TOTALS
	No.	Ave.	Trip	No.	Ave.	Trip	No.	Ave.	Trip
Time Range	Days	DWELLS	Rate	Days	DWELLS	Rate	Days	DWELLS	Rate
00:00-01:00									
01:00-02:00									
02:00-03:00									
03:00-04:00									
04:00-05:00									
05:00-06:00									
06:00-07:00									
07:00-08:0	1	143	0.056	1	143	0.245	1	143	0.301
08:00-09:0	1	143	0.189	1	143	0.741	1	143	0.93
09:00-10:0	1	143	0.154	1	143	0.189	1	143	0.343
10:00-11:0	1	143	0.147	1	143	0.14	1	143	0.287
11:00-12:0	1	143	0.217	1	143	0.308	1	143	0.525
12:00-13:0	1	143	0.266	1	143	0.322	1	143	0.588
13:00-14:0	1	143	0.273	1	143	0.189	1	143	0.462
14:00-15:0	1	143	0.21	1	143	0.252	1	143	0.462
15:00-16:0	1	143	0.378	1	143	0.287	1	143	0.665
16:00-17:0	1	143	0.28	1	143	0.217	1	143	0.497
17:00-18:0	1	143	0.259	1	143	0.203	1	143	0.462
18:00-19:0	1	143	0.322	1	143	0.301	1	143	0.623
19:00-20:0	1	143	0.497	1	143	0.245	1	143	0.742
20:00-21:0	1	143	0.28	1	143	0.21	1	143	0.49
21:00-22:00									
22:00-23:00									
23:00-24:00									
Daily Trip Rates:			3.528			3.849			7.377

TRIP RATE for Land Use 03 - RESIDENTIAL/M - MIXED PRIVATE/AFFORDABLE HOUSING
Calculation Factor: 1 DWELLS
Count Type: CARS

			ARRIVALS			DEPARTURES			TOTALS
	No.	Ave.	Trip	No.	Ave.	Trip	No.	Ave.	Trip
Time Range	Days	DWELLS	Rate	Days	DWELLS	Rate	Days	DWELLS	Rate
00:00-01:00									
01:00-02:00									
02:00-03:00									
03:00-04:00									
04:00-05:00									

05:00-06:00									
06:00-07:00									
07:00-08:0	1	143	0.021	1	143	0.084	1	143	0.105
08:00-09:0	1	143	0.056	1	143	0.21	1	143	0.266
09:00-10:0	1	143	0.056	1	143	0.056	1	143	0.112
10:00-11:0	1	143	0.049	1	143	0.056	1	143	0.105
11:00-12:0	1	143	0.084	1	143	0.098	1	143	0.182
12:00-13:0	1	143	0.091	1	143	0.091	1	143	0.182
13:00-14:0	1	143	0.063	1	143	0.056	1	143	0.119
14:00-15:0	1	143	0.07	1	143	0.056	1	143	0.126
15:00-16:0	1	143	0.091	1	143	0.105	1	143	0.196
16:00-17:0	1	143	0.07	1	143	0.077	1	143	0.147
17:00-18:0	1	143	0.112	1	143	0.042	1	143	0.154
18:00-19:0	1	143	0.077	1	143	0.063	1	143	0.14
19:00-20:0	1	143	0.112	1	143	0.042	1	143	0.154
20:00-21:0	1	143	0.07	1	143	0.049	1	143	0.119
21:00-22:00									
22:00-23:00									
23:00-24:00									
Daily Trip Rates:			1.022			1.085			2.107

TRIP RATE for Land Use 03 - RESIDENTIAL/M - MIXED PRIVATE/AFFORDABLE HOUSING
Calculation Factor: 1 DWELLS
Count Type: LGVS

			ARRIVALS			DEPARTURES			TOTALS
	No.	Ave.	Trip	No.	Ave.	Trip	No.	Ave.	Trip
Time Range	Days	DWELLS	Rate	Days	DWELLS	Rate	Days	DWELLS	Rate
00:00-01:00									
01:00-02:00									
02:00-03:00									
03:00-04:00									
04:00-05:00									
05:00-06:00									
06:00-07:00									
07:00-08:0	1	143	0.007	1	143	0	1	143	0.007
08:00-09:0	1	143	0.007	1	143	0.007	1	143	0.014
09:00-10:0	1	143	0	1	143	0	1	143	0
10:00-11:0	1	143	0	1	143	0	1	143	0
11:00-12:0	1	143	0	1	143	0	1	143	0
12:00-13:0	1	143	0.021	1	143	0.028	1	143	0.049
13:00-14:0	1	143	0.021	1	143	0.007	1	143	0.028
14:00-15:0	1	143	0.014	1	143	0.021	1	143	0.035
15:00-16:0	1	143	0	1	143	0.007	1	143	0.007
16:00-17:0	1	143	0.007	1	143	0.007	1	143	0.014
17:00-18:0	1	143	0	1	143	0	1	143	0
18:00-19:0	1	143	0.014	1	143	0.007	1	143	0.021
19:00-20:0	1	143	0	1	143	0.014	1	143	0.014
20:00-21:0	1	143	0	1	143	0	1	143	0
21:00-22:00									
22:00-23:00									
23:00-24:00									
Daily Trip Rates:			0.091			0.098			0.189

TRIP RATE for Land Use 03 - RESIDENTIAL/M - MIXED PRIVATE/AFFORDABLE HOUSING
Calculation Factor: 1 DWELLS
Count Type: MOTOR CYCLES

			ARRIVALS			DEPARTURES			TOTALS
	No.	Ave.	Trip	No.	Ave.	Trip	No.	Ave.	Trip
Time Range	Days	DWELLS	Rate	Days	DWELLS	Rate	Days	DWELLS	Rate
00:00-01:00									
01:00-02:00									
02:00-03:00									
03:00-04:00									
04:00-05:00									
05:00-06:00									
06:00-07:00									
07:00-08:0	1	143	0	1	143	0.007	1	143	0.007
08:00-09:0	1	143	0	1	143	0	1	143	0
09:00-10:0	1	143	0	1	143	0.007	1	143	0.007
10:00-11:0	1	143	0.007	1	143	0	1	143	0.007
11:00-12:0	1	143	0	1	143	0.007	1	143	0.007
12:00-13:0	1	143	0	1	143	0	1	143	0
13:00-14:0	1	143	0	1	143	0	1	143	0
14:00-15:0	1	143	0	1	143	0	1	143	0
15:00-16:0	1	143	0.007	1	143	0	1	143	0.007
16:00-17:0	1	143	0.007	1	143	0.007	1	143	0.014
17:00-18:0	1	143	0	1	143	0	1	143	0
18:00-19:0	1	143	0.014	1	143	0.007	1	143	0.021
19:00-20:0	1	143	0.007	1	143	0.007	1	143	0.014
20:00-21:0	1	143	0	1	143	0	1	143	0
21:00-22:00									
22:00-23:00									
23:00-24:00									
Daily Trip Rates:			0.042			0.042			0.084

TRIP RATE for Land Use 03 - RESIDENTIAL/M - MIXED PRIVATE/AFFORDABLE HOUSING
Calculation Factor: 1 DWELLS
Count Type: Underground Passengers

			ARRIVALS			DEPARTURES			TOTALS

Time Range	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									
07:00-08:0	1	143	0	1	143	0	1	143	0
08:00-09:0	1	143	0	1	143	0.042	1	143	0.042
09:00-10:0	1	143	0.007	1	143	0.014	1	143	0.021
10:00-11:0	1	143	0	1	143	0	1	143	0
11:00-12:0	1	143	0.014	1	143	0	1	143	0.014
12:00-13:0	1	143	0	1	143	0.014	1	143	0.014
13:00-14:0	1	143	0	1	143	0.014	1	143	0.014
14:00-15:0	1	143	0	1	143	0	1	143	0
15:00-16:0	1	143	0.014	1	143	0	1	143	0.014
16:00-17:0	1	143	0	1	143	0	1	143	0
17:00-18:0	1	143	0	1	143	0.014	1	143	0.014
18:00-19:0	1	143	0.007	1	143	0	1	143	0.007
19:00-20:0	1	143	0.035	1	143	0	1	143	0.035
20:00-21:0	1	143	0	1	143	0	1	143	0
21:00-22:00									
22:00-23:00									
23:00-24:00									
Daily Trip Rates:			0.077			0.098			0.175

TRIP RATE for Land Use 03 - RESIDENTIAL/M - MIXED PRIVATE/AFFORDABLE HOUSING
Calculation Factor: 1 DWELLS
Count Type: Overground Passengers

			ARRIVALS			DEPARTURES			TOTALS
Time Range	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									
07:00-08:0	1	143	0	1	143	0.014	1	143	0.014
08:00-09:0	1	143	0	1	143	0.014	1	143	0.014
09:00-10:0	1	143	0	1	143	0.007	1	143	0.007
10:00-11:0	1	143	0	1	143	0.007	1	143	0.007
11:00-12:0	1	143	0	1	143	0.014	1	143	0.014
12:00-13:0	1	143	0	1	143	0	1	143	0
13:00-14:0	1	143	0	1	143	0.007	1	143	0.007
14:00-15:0	1	143	0.014	1	143	0	1	143	0.014
15:00-16:0	1	143	0	1	143	0	1	143	0
16:00-17:0	1	143	0.014	1	143	0	1	143	0.014
17:00-18:0	1	143	0	1	143	0.014	1	143	0.014
18:00-19:0	1	143	0.021	1	143	0.007	1	143	0.028
19:00-20:0	1	143	0	1	143	0	1	143	0
20:00-21:0	1	143	0	1	143	0	1	143	0
21:00-22:00									
22:00-23:00									
23:00-24:00									
Daily Trip Rates:			0.049			0.084			0.133

TRIP RATE for Land Use 03 - RESIDENTIAL/M - MIXED PRIVATE/AFFORDABLE HOUSING
Calculation Factor: 1 DWELLS
Count Type: National Rail Passengers

			ARRIVALS			DEPARTURES			TOTALS
Time Range	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									
07:00-08:0	1	143	0	1	143	0.021	1	143	0.021
08:00-09:0	1	143	0.007	1	143	0.028	1	143	0.035
09:00-10:0	1	143	0	1	143	0	1	143	0
10:00-11:0	1	143	0	1	143	0.007	1	143	0.007
11:00-12:0	1	143	0.007	1	143	0.007	1	143	0.014
12:00-13:0	1	143	0.007	1	143	0	1	143	0.007
13:00-14:0	1	143	0.021	1	143	0.007	1	143	0.028
14:00-15:0	1	143	0.007	1	143	0.007	1	143	0.014
15:00-16:0	1	143	0.014	1	143	0	1	143	0.014
16:00-17:0	1	143	0	1	143	0.014	1	143	0.014
17:00-18:0	1	143	0.007	1	143	0	1	143	0.007
18:00-19:0	1	143	0.035	1	143	0.014	1	143	0.049
19:00-20:0	1	143	0.028	1	143	0	1	143	0.028
20:00-21:0	1	143	0	1	143	0	1	143	0
21:00-22:00									
22:00-23:00									
23:00-24:00									

Daily Trip Rates:			0.133			0.105			0.238

TRIP RATE for Land Use 03 - RESIDENTIAL/M - MIXED PRIVATE/AFFORDABLE HOUSING
Calculation Factor: 1 DWELLS
Count Type: Bus Passengers

	ARRIVALS			DEPARTURES			TOTALS		
	No.	Ave.	Trip	No.	Ave.	Trip	No.	Ave.	Trip
Time Range	Days	DWELLS	Rate	Days	DWELLS	Rate	Days	DWELLS	Rate
00:00-01:00									
01:00-02:00									
02:00-03:00									
03:00-04:00									
04:00-05:00									
05:00-06:00									
06:00-07:00									
07:00-08:0	1	143	0	1	143	0.042	1	143	0.042
08:00-09:0	1	143	0	1	143	0.084	1	143	0.084
09:00-10:0	1	143	0.014	1	143	0.021	1	143	0.035
10:00-11:0	1	143	0.007	1	143	0.021	1	143	0.028
11:00-12:0	1	143	0.021	1	143	0.042	1	143	0.063
12:00-13:0	1	143	0.007	1	143	0.049	1	143	0.056
13:00-14:0	1	143	0.007	1	143	0.007	1	143	0.014
14:00-15:0	1	143	0.007	1	143	0.014	1	143	0.021
15:00-16:0	1	143	0.049	1	143	0.007	1	143	0.056
16:00-17:0	1	143	0.042	1	143	0.028	1	143	0.07
17:00-18:0	1	143	0.007	1	143	0.014	1	143	0.021
18:00-19:0	1	143	0.035	1	143	0.028	1	143	0.063
19:00-20:0	1	143	0.042	1	143	0.007	1	143	0.049
20:00-21:0	1	143	0.021	1	143	0	1	143	0.021
21:00-22:00									
22:00-23:00									
23:00-24:00									
Daily Trip Rates:			0.259			0.364			0.623

Parameter summary

Trip rate pa	143 - 143 (units:)
Survey date	01/01/11 - 22/11/18
Number of	1
Number of	0
Number of	0
Surveys aut	5
Surveys ma	15

This sectior followed b the total n the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

TRICS 7.6.1
Trip Rate P Number of dwellings

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use 03 - RESIDENTIAL
Category C - FLATS PRIVATELY OWNED
MULTI-MODAL VEHICLES

Selected regions and areas:
1 GREATER LONDON
HO HOUNSLOV 2 days
This section displays the number of survey days per TRICS® sub-region in the selected set

Secondary Filtering selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.
Parameter Number of dwellings
Actual Ran 86 to 150 (units:)
Range Sele 50 to 493 (units:)

Public Transport Provision:
Selection b Include all surveys

Date Range 01/01/11 to 03/07/18

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.
Selected survey days:
Wednesda 1 days
Friday 1 days
This data displays the number of selected surveys by day of the week.

Selected survey types:
Manual co 2 days
Directional 0 days
This data d the total a whilst ATC surveys are undertaking using machines.

Selected Locations:

Town Cent	1
Edge of To	1
Suburban /	0
Edge of To	0
Neighbour	0
Free Stand	0
Not Known	0

This data d Edge of To Suburban Neighbour Edge of To Town Centre and Not Known.

Selected Location Sub Categories:

Industrial Z	0
Commercia	0
Developme	1
Residentia	0
Retail Zone	0
Built-Up Zo	1
Village	0
Out of Tow	0
High Street	0
No Sub Cat	0

This data d Industrial Z Developm Residentia Retail Zon Built-Up Zo Village Out of Tov High Street and No Sub Category.

Secondary Filtering selection:

Use Class:
C3 2 days
This data d which can be found within the Library module of TRICS®.

Population within 1 mile:
25,001 to 5 2 days
This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:
500,001 or 2 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 2 days
This data d within a radius of 5-miles of selected survey sites.

Travel Plan:
Yes 2 days
This data d and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:
2 Poor 1 days
3 Moderat 1 days
This data displays the number of selected surveys with PTAL Ratings.

LIST OF SITES relevant to selection parameters
1 HO-03-C-0: BLOCK OF I HOUNSLOW
HIGH STREET

BRENTFORD
Town Centre
Built-Up Zone
Total Number of dwel 86
Survey dat WEDNESD/ ######## Survey Typ MANUAL
2 HO-03-C-0: BLOCKS OF HOUNSLOW

COMMERCE ROAD

BRENTFORD
Edge of Town Centre
Development Zone
Total Number of dwel 150
Survey dat FRIDAY ######## Survey Typ MANUAL

This sectio it displays the select the day of and whether the survey was a manual classified count or an ATC count.

Manually Deselected Sites

Site Ref	Reason for Deselection
BT-03-C-01	location
BT-03-C-02	location
EN-03-C-02	location
HO-03-C-0	location
HV-03-C-02	location
IS-03-C-04	location
KN-03-C-03	location
RD-03-C-03	location
SK-03-C-01	location

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
Calculation Factor: 1 DWELLS
Count Type: VEHICLES

	ARRIVALS			DEPARTURES			TOTALS		
Time Rang	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									
07:00-08:0	2	118	0.034	2	118	0.097	2	118	0.131
08:00-09:0	2	118	0.042	2	118	0.097	2	118	0.139
09:00-10:0	2	118	0.042	2	118	0.064	2	118	0.106
10:00-11:0	2	118	0.068	2	118	0.076	2	118	0.144
11:00-12:0	2	118	0.072	2	118	0.081	2	118	0.153
12:00-13:0	2	118	0.064	2	118	0.055	2	118	0.119
13:00-14:0	2	118	0.055	2	118	0.072	2	118	0.127
14:00-15:0	2	118	0.021	2	118	0.038	2	118	0.059
15:00-16:0	2	118	0.089	2	118	0.076	2	118	0.165
16:00-17:0	2	118	0.136	2	118	0.068	2	118	0.204
17:00-18:0	2	118	0.123	2	118	0.089	2	118	0.212
18:00-19:0	2	118	0.11	2	118	0.059	2	118	0.169
19:00-20:0	1	150	0.067	1	150	0.08	1	150	0.147
20:00-21:0	1	150	0.047	1	150	0.047	1	150	0.094
21:00-22:00									
22:00-23:00									
23:00-24:00									
Daily Trip Rates:			0.97			0.999			1.969

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
Calculation Factor: 1 DWELLS
Count Type: TAXIS

	ARRIVALS			DEPARTURES			TOTALS		
Time Rang	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									
07:00-08:0	2	118	0	2	118	0	2	118	0
08:00-09:0	2	118	0.004	2	118	0.004	2	118	0.008
09:00-10:0	2	118	0	2	118	0	2	118	0
10:00-11:0	2	118	0	2	118	0	2	118	0
11:00-12:0	2	118	0.008	2	118	0.008	2	118	0.016
12:00-13:0	2	118	0	2	118	0	2	118	0
13:00-14:0	2	118	0	2	118	0	2	118	0
14:00-15:0	2	118	0	2	118	0	2	118	0
15:00-16:0	2	118	0.008	2	118	0.004	2	118	0.012
16:00-17:0	2	118	0.004	2	118	0.008	2	118	0.012
17:00-18:0	2	118	0.013	2	118	0.008	2	118	0.021
18:00-19:0	2	118	0.017	2	118	0.017	2	118	0.034
19:00-20:0	1	150	0	1	150	0.007	1	150	0.007
20:00-21:0	1	150	0	1	150	0	1	150	0
21:00-22:00									
22:00-23:00									
23:00-24:00									
Daily Trip Rates:			0.054			0.056			0.11

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
Calculation Factor: 1 DWELLS
Count Type: OGVS

	ARRIVALS			DEPARTURES			TOTALS		
Time Rang	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									
07:00-08:0	2	118	0.004	2	118	0.004	2	118	0.008
08:00-09:0	2	118	0	2	118	0	2	118	0
09:00-10:0	2	118	0.008	2	118	0.004	2	118	0.012
10:00-11:0	2	118	0	2	118	0	2	118	0
11:00-12:0	2	118	0.004	2	118	0	2	118	0.004
12:00-13:0	2	118	0	2	118	0	2	118	0
13:00-14:0	2	118	0.013	2	118	0.017	2	118	0.03
14:00-15:0	2	118	0.004	2	118	0	2	118	0.004
15:00-16:0	2	118	0	2	118	0.008	2	118	0.008
16:00-17:0	2	118	0	2	118	0	2	118	0
17:00-18:0	2	118	0.004	2	118	0.004	2	118	0.008
18:00-19:0	2	118	0	2	118	0	2	118	0
19:00-20:0	1	150	0	1	150	0	1	150	0
20:00-21:0	1	150	0	1	150	0	1	150	0
21:00-22:00									
22:00-23:00									
23:00-24:00									
Daily Trip Rates:			0.037			0.037			0.074

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
Calculation Factor: 1 DWELLS
Count Type: CYCLISTS

			ARRIVALS			DEPARTURES			TOTALS
	No.	Ave.	Trip	No.	Ave.	Trip	No.	Ave.	Trip
Time Rang	Days	DWELLS	Rate	Days	DWELLS	Rate	Days	DWELLS	Rate
00:00-01:00									
01:00-02:00									
02:00-03:00									
03:00-04:00									
04:00-05:00									
05:00-06:00									
06:00-07:00									
07:00-08:0	2	118	0.013	2	118	0.03	2	118	0.043
08:00-09:0	2	118	0.008	2	118	0.03	2	118	0.038
09:00-10:0	2	118	0	2	118	0.004	2	118	0.004
10:00-11:0	2	118	0.004	2	118	0.013	2	118	0.017
11:00-12:0	2	118	0.004	2	118	0.004	2	118	0.008
12:00-13:0	2	118	0	2	118	0	2	118	0
13:00-14:0	2	118	0.013	2	118	0	2	118	0.013
14:00-15:0	2	118	0.004	2	118	0	2	118	0.004
15:00-16:0	2	118	0	2	118	0	2	118	0
16:00-17:0	2	118	0	2	118	0.004	2	118	0.004
17:00-18:0	2	118	0.008	2	118	0.004	2	118	0.012
18:00-19:0	2	118	0.017	2	118	0.013	2	118	0.03
19:00-20:0	1	150	0.027	1	150	0	1	150	0.027
20:00-21:0	1	150	0.013	1	150	0	1	150	0.013
21:00-22:00									
22:00-23:00									
23:00-24:00									
Daily Trip Rates:			0.111			0.102			0.213

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
Calculation Factor: 1 DWELLS
Count Type: VEHICLE OCCUPANTS

			ARRIVALS			DEPARTURES			TOTALS
	No.	Ave.	Trip	No.	Ave.	Trip	No.	Ave.	Trip
Time Rang	Days	DWELLS	Rate	Days	DWELLS	Rate	Days	DWELLS	Rate
00:00-01:00									
01:00-02:00									
02:00-03:00									
03:00-04:00									
04:00-05:00									
05:00-06:00									
06:00-07:00									
07:00-08:0	2	118	0.047	2	118	0.127	2	118	0.174
08:00-09:0	2	118	0.047	2	118	0.119	2	118	0.166
09:00-10:0	2	118	0.064	2	118	0.081	2	118	0.145
10:00-11:0	2	118	0.076	2	118	0.081	2	118	0.157
11:00-12:0	2	118	0.102	2	118	0.102	2	118	0.204
12:00-13:0	2	118	0.072	2	118	0.068	2	118	0.14
13:00-14:0	2	118	0.089	2	118	0.089	2	118	0.178
14:00-15:0	2	118	0.025	2	118	0.038	2	118	0.063
15:00-16:0	2	118	0.119	2	118	0.089	2	118	0.208
16:00-17:0	2	118	0.174	2	118	0.093	2	118	0.267
17:00-18:0	2	118	0.153	2	118	0.119	2	118	0.272
18:00-19:0	2	118	0.178	2	118	0.081	2	118	0.259
19:00-20:0	1	150	0.113	1	150	0.167	1	150	0.28
20:00-21:0	1	150	0.08	1	150	0.06	1	150	0.14
21:00-22:00									
22:00-23:00									
23:00-24:00									
Daily Trip Rates:			1.339			1.314			2.653

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
Calculation Factor: 1 DWELLS
Count Type: PEDESTRIANS

			ARRIVALS			DEPARTURES			TOTALS
	No.	Ave.	Trip	No.	Ave.	Trip	No.	Ave.	Trip
Time Rang	Days	DWELLS	Rate	Days	DWELLS	Rate	Days	DWELLS	Rate

00:00-01:00									
01:00-02:00									
02:00-03:00									
03:00-04:00									
04:00-05:00									
05:00-06:00									
06:00-07:00									
07:00-08:0	2	118	0.034	2	118	0.114	2	118	0.148
08:00-09:0	2	118	0.064	2	118	0.11	2	118	0.174
09:00-10:0	2	118	0.059	2	118	0.068	2	118	0.127
10:00-11:0	2	118	0.038	2	118	0.042	2	118	0.08
11:00-12:0	2	118	0.051	2	118	0.059	2	118	0.11
12:00-13:0	2	118	0.064	2	118	0.055	2	118	0.119
13:00-14:0	2	118	0.076	2	118	0.051	2	118	0.127
14:00-15:0	2	118	0.03	2	118	0.072	2	118	0.102
15:00-16:0	2	118	0.081	2	118	0.034	2	118	0.115
16:00-17:0	2	118	0.042	2	118	0.072	2	118	0.114
17:00-18:0	2	118	0.076	2	118	0.059	2	118	0.135
18:00-19:0	2	118	0.055	2	118	0.076	2	118	0.131
19:00-20:0	1	150	0.087	1	150	0.04	1	150	0.127
20:00-21:0	1	150	0.093	1	150	0.04	1	150	0.133
21:00-22:00									
22:00-23:00									
23:00-24:00									
Daily Trip Rates:			0.85			0.892			1.742

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
Calculation Factor: 1 DWELLS
Count Type: BUS/TRAM PASSENGERS

			ARRIVALS			DEPARTURES			TOTALS
	No.	Ave.	Trip	No.	Ave.	Trip	No.	Ave.	Trip
Time Rang	Days	DWELLS	Rate	Days	DWELLS	Rate	Days	DWELLS	Rate
00:00-01:00									
01:00-02:00									
02:00-03:00									
03:00-04:00									
04:00-05:00									
05:00-06:00									
06:00-07:00									
07:00-08:0	2	118	0.008	2	118	0.161	2	118	0.169
08:00-09:0	2	118	0.03	2	118	0.182	2	118	0.212
09:00-10:0	2	118	0.034	2	118	0.038	2	118	0.072
10:00-11:0	2	118	0.025	2	118	0.008	2	118	0.033
11:00-12:0	2	118	0.021	2	118	0.034	2	118	0.055
12:00-13:0	2	118	0.017	2	118	0.038	2	118	0.055
13:00-14:0	2	118	0.017	2	118	0.055	2	118	0.072
14:00-15:0	2	118	0.021	2	118	0.013	2	118	0.034
15:00-16:0	2	118	0.042	2	118	0.025	2	118	0.067
16:00-17:0	2	118	0.064	2	118	0.021	2	118	0.085
17:00-18:0	2	118	0.123	2	118	0.025	2	118	0.148
18:00-19:0	2	118	0.064	2	118	0.042	2	118	0.106
19:00-20:0	1	150	0.047	1	150	0.013	1	150	0.06
20:00-21:0	1	150	0.013	1	150	0.02	1	150	0.033
21:00-22:00									
22:00-23:00									
23:00-24:00									
Daily Trip Rates:			0.526			0.675			1.201

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
Calculation Factor: 1 DWELLS
Count Type: TOTAL RAIL PASSENGERS

			ARRIVALS			DEPARTURES			TOTALS
	No.	Ave.	Trip	No.	Ave.	Trip	No.	Ave.	Trip
Time Rang	Days	DWELLS	Rate	Days	DWELLS	Rate	Days	DWELLS	Rate
00:00-01:00									
01:00-02:00									
02:00-03:00									
03:00-04:00									
04:00-05:00									
05:00-06:00									
06:00-07:00									
07:00-08:0	2	118	0.008	2	118	0.055	2	118	0.063
08:00-09:0	2	118	0.004	2	118	0.047	2	118	0.051
09:00-10:0	2	118	0.017	2	118	0.008	2	118	0.025
10:00-11:0	2	118	0	2	118	0.017	2	118	0.017
11:00-12:0	2	118	0.004	2	118	0	2	118	0.004
12:00-13:0	2	118	0	2	118	0	2	118	0
13:00-14:0	2	118	0.004	2	118	0	2	118	0.004
14:00-15:0	2	118	0	2	118	0.008	2	118	0.008
15:00-16:0	2	118	0.004	2	118	0	2	118	0.004
16:00-17:0	2	118	0	2	118	0.004	2	118	0.004
17:00-18:0	2	118	0.017	2	118	0	2	118	0.017
18:00-19:0	2	118	0.038	2	118	0.004	2	118	0.042
19:00-20:0	1	150	0.02	1	150	0	1	150	0.02
20:00-21:0	1	150	0.013	1	150	0	1	150	0.013
21:00-22:00									
22:00-23:00									
23:00-24:00									
Daily Trip Rates:			0.129			0.143			0.272

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
Calculation Factor: 1 DWELLS
Count Type: PUBLIC TRANSPORT USERS

			ARRIVALS			DEPARTURES			TOTALS
	No.	Ave.	Trip	No.	Ave.	Trip	No.	Ave.	Trip

Time Range	Days	DWELLS	Rate	Days	DWELLS	Rate	Days	DWELLS	Rate
00:00-01:00									
01:00-02:00									
02:00-03:00									
03:00-04:00									
04:00-05:00									
05:00-06:00									
06:00-07:00									
07:00-08:00	2	118	0.017	2	118	0.216	2	118	0.233
08:00-09:00	2	118	0.034	2	118	0.229	2	118	0.263
09:00-10:00	2	118	0.051	2	118	0.047	2	118	0.098
10:00-11:00	2	118	0.025	2	118	0.025	2	118	0.05
11:00-12:00	2	118	0.025	2	118	0.034	2	118	0.059
12:00-13:00	2	118	0.017	2	118	0.038	2	118	0.055
13:00-14:00	2	118	0.021	2	118	0.055	2	118	0.076
14:00-15:00	2	118	0.021	2	118	0.021	2	118	0.042
15:00-16:00	2	118	0.047	2	118	0.025	2	118	0.072
16:00-17:00	2	118	0.064	2	118	0.025	2	118	0.089
17:00-18:00	2	118	0.14	2	118	0.025	2	118	0.165
18:00-19:00	2	118	0.102	2	118	0.047	2	118	0.149
19:00-20:00	1	150	0.067	1	150	0.013	1	150	0.08
20:00-21:00	1	150	0.027	1	150	0.02	1	150	0.047
21:00-22:00									
22:00-23:00									
23:00-24:00									
Daily Trip Rates:			0.658			0.82			1.478

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
Calculation Factor: 1 DWELLS
Count Type: TOTAL PEOPLE

	ARRIVALS			DEPARTURES			TOTALS		
	No.	Ave.	Trip	No.	Ave.	Trip	No.	Ave.	Trip
Time Range	Days	DWELLS	Rate	Days	DWELLS	Rate	Days	DWELLS	Rate
00:00-01:00									
01:00-02:00									
02:00-03:00									
03:00-04:00									
04:00-05:00									
05:00-06:00									
06:00-07:00									
07:00-08:00	2	118	0.11	2	118	0.487	2	118	0.597
08:00-09:00	2	118	0.153	2	118	0.487	2	118	0.64
09:00-10:00	2	118	0.174	2	118	0.199	2	118	0.373
10:00-11:00	2	118	0.144	2	118	0.161	2	118	0.305
11:00-12:00	2	118	0.182	2	118	0.199	2	118	0.381
12:00-13:00	2	118	0.153	2	118	0.161	2	118	0.314
13:00-14:00	2	118	0.199	2	118	0.195	2	118	0.394
14:00-15:00	2	118	0.081	2	118	0.131	2	118	0.212
15:00-16:00	2	118	0.246	2	118	0.148	2	118	0.394
16:00-17:00	2	118	0.28	2	118	0.195	2	118	0.475
17:00-18:00	2	118	0.377	2	118	0.208	2	118	0.585
18:00-19:00	2	118	0.352	2	118	0.216	2	118	0.568
19:00-20:00	1	150	0.293	1	150	0.22	1	150	0.513
20:00-21:00	1	150	0.213	1	150	0.12	1	150	0.333
21:00-22:00									
22:00-23:00									
23:00-24:00									
Daily Trip Rates:			2.957			3.127			6.084

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
Calculation Factor: 1 DWELLS
Count Type: CARS

	ARRIVALS			DEPARTURES			TOTALS		
	No.	Ave.	Trip	No.	Ave.	Trip	No.	Ave.	Trip
Time Range	Days	DWELLS	Rate	Days	DWELLS	Rate	Days	DWELLS	Rate
00:00-01:00									
01:00-02:00									
02:00-03:00									
03:00-04:00									
04:00-05:00									
05:00-06:00									
06:00-07:00									
07:00-08:00	2	118	0.03	2	118	0.085	2	118	0.115
08:00-09:00	2	118	0.03	2	118	0.081	2	118	0.111
09:00-10:00	2	118	0.03	2	118	0.055	2	118	0.085
10:00-11:00	2	118	0.055	2	118	0.064	2	118	0.119
11:00-12:00	2	118	0.047	2	118	0.064	2	118	0.111
12:00-13:00	2	118	0.047	2	118	0.038	2	118	0.085
13:00-14:00	2	118	0.021	2	118	0.034	2	118	0.055
14:00-15:00	2	118	0.008	2	118	0.025	2	118	0.033
15:00-16:00	2	118	0.051	2	118	0.042	2	118	0.093
16:00-17:00	2	118	0.11	2	118	0.047	2	118	0.157
17:00-18:00	2	118	0.085	2	118	0.055	2	118	0.14
18:00-19:00	2	118	0.085	2	118	0.042	2	118	0.127
19:00-20:00	1	150	0.06	1	150	0.067	1	150	0.127
20:00-21:00	1	150	0.033	1	150	0.04	1	150	0.073
21:00-22:00									
22:00-23:00									
23:00-24:00									
Daily Trip Rates:			0.692			0.739			1.431

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
Calculation Factor: 1 DWELLS
Count Type: LGVS

ARRIVALS	DEPARTURES	TOTALS

Time Range	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									
07:00-08:0	2	118	0	2	118	0	2	118	0
08:00-09:0	2	118	0.004	2	118	0	2	118	0.004
09:00-10:0	2	118	0.004	2	118	0.004	2	118	0.008
10:00-11:0	2	118	0.013	2	118	0.013	2	118	0.026
11:00-12:0	2	118	0.008	2	118	0.008	2	118	0.016
12:00-13:0	2	118	0.017	2	118	0.017	2	118	0.034
13:00-14:0	2	118	0.021	2	118	0.017	2	118	0.038
14:00-15:0	2	118	0.008	2	118	0.013	2	118	0.021
15:00-16:0	2	118	0.025	2	118	0.021	2	118	0.046
16:00-17:0	2	118	0.021	2	118	0.013	2	118	0.034
17:00-18:0	2	118	0.013	2	118	0.017	2	118	0.03
18:00-19:0	2	118	0.004	2	118	0	2	118	0.004
19:00-20:0	1	150	0	1	150	0.007	1	150	0.007
20:00-21:0	1	150	0	1	150	0	1	150	0
21:00-22:00									
22:00-23:00									
23:00-24:00									
Daily Trip Rates:			0.138			0.13			0.268

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
Calculation Factor: 1 DWELLS
Count Type: MOTOR CYCLES

			ARRIVALS			DEPARTURES			TOTALS
Time Range	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									
07:00-08:0	2	118	0	2	118	0.008	2	118	0.008
08:00-09:0	2	118	0.004	2	118	0.013	2	118	0.017
09:00-10:0	2	118	0	2	118	0	2	118	0
10:00-11:0	2	118	0	2	118	0	2	118	0
11:00-12:0	2	118	0.004	2	118	0	2	118	0.004
12:00-13:0	2	118	0	2	118	0	2	118	0
13:00-14:0	2	118	0	2	118	0.004	2	118	0.004
14:00-15:0	2	118	0	2	118	0	2	118	0
15:00-16:0	2	118	0.004	2	118	0	2	118	0.004
16:00-17:0	2	118	0	2	118	0	2	118	0
17:00-18:0	2	118	0.008	2	118	0.004	2	118	0.012
18:00-19:0	2	118	0.004	2	118	0	2	118	0.004
19:00-20:0	1	150	0.007	1	150	0	1	150	0.007
20:00-21:0	1	150	0.013	1	150	0.007	1	150	0.02
21:00-22:00									
22:00-23:00									
23:00-24:00									
Daily Trip Rates:			0.044			0.036			0.08

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
Calculation Factor: 1 DWELLS
Count Type: Servicing Vehicles

			ARRIVALS			DEPARTURES			TOTALS
Time Range	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									
07:00-08:0	2	118	0.004	2	118	0.004	2	118	0.008
08:00-09:0	2	118	0.004	2	118	0	2	118	0.004
09:00-10:0	2	118	0.017	2	118	0.008	2	118	0.025
10:00-11:0	2	118	0.021	2	118	0.017	2	118	0.038
11:00-12:0	2	118	0.008	2	118	0.004	2	118	0.012
12:00-13:0	2	118	0.013	2	118	0.021	2	118	0.034
13:00-14:0	2	118	0.03	2	118	0.025	2	118	0.055
14:00-15:0	2	118	0	2	118	0.013	2	118	0.013
15:00-16:0	2	118	0.025	2	118	0.025	2	118	0.05
16:00-17:0	2	118	0.017	2	118	0.013	2	118	0.03
17:00-18:0	2	118	0.017	2	118	0.021	2	118	0.038
18:00-19:0	2	118	0.008	2	118	0.008	2	118	0.016
19:00-20:0	1	150	0.007	1	150	0.013	1	150	0.02
20:00-21:0	1	150	0	1	150	0	1	150	0
21:00-22:00									
22:00-23:00									
23:00-24:00									
Daily Trip Rates:			0.171			0.172			0.343

Parameter summary

Trip rate pa 86 - 150 (units:)
Survey dat 01/01/11 - 03/07/18

Number of	2
Number of	0
Number of	0
Surveys au	1
Surveys ma	9

This sectio followed t the total n the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

TRICS trip rates

Mode	AM			PM			Daily		
	In	Out	Total	In	Out	Total	In	Out	Total
Underground	0.006	0.066	0.071	0.012	0.014	0.026	0.194	0.215	0.409
Bus	0.015	0.133	0.148	0.065	0.020	0.085	0.393	0.520	0.912
Motorcycle	0.002	0.007	0.009	0.004	0.002	0.006	0.043	0.039	0.082
Car Driver	0.043	0.146	0.189	0.099	0.049	0.147	0.857	0.912	1.769
Car Passenger	0.038	0.072	0.110	0.065	0.037	0.102	0.634	0.616	1.250
Bicycle	0.004	0.022	0.026	0.008	0.002	0.010	0.091	0.083	0.173
Foot	0.064	0.171	0.234	0.066	0.082	0.148	1.031	1.104	2.135
Total persons	0.171	0.614	0.785	0.318	0.206	0.524	3.243	3.488	6.731

20% car reduction
80% car trips

Redistribution factors

Mode	AM			PM			Daily		
	In	Out	Total	In	Out	Total	In	Out	Total
New Car Driver	0.034	0.116	0.151	0.079	0.039	0.118	0.686	0.730	1.415
Rem. Car Driver	0.009	0.029	0.038	0.020	0.010	0.029	0.171	0.182	0.354
New Car Passenger	0.030	0.058	0.088	0.052	0.030	0.082	0.507	0.493	1.000
Rem. Car Passenger	0.008	0.014	0.022	0.013	0.007	0.020	0.127	0.123	0.250
Add. Underground	0.006	0.016	0.022	0.012	0.006	0.019	0.112	0.115	0.226
Add. Bus	0.006	0.016	0.022	0.012	0.006	0.019	0.112	0.115	0.226
Add. Bicycle	0.002	0.005	0.007	0.004	0.002	0.006	0.037	0.038	0.075
Add. Foot	0.002	0.005	0.007	0.004	0.002	0.006	0.037	0.038	0.075

Revised trip rates

Mode	AM			PM			Daily		
	In	Out	Total	In	Out	Total	In	Out	Total
Underground	0.012	0.082	0.093	0.024	0.020	0.045	0.306	0.330	0.635
Bus	0.021	0.149	0.170	0.077	0.026	0.103	0.504	0.634	1.138
Motorcycle	0.002	0.007	0.009	0.004	0.002	0.006	0.043	0.039	0.082
Car Driver	0.034	0.116	0.151	0.079	0.039	0.118	0.686	0.730	1.415
Car Passenger	0.030	0.058	0.088	0.052	0.030	0.082	0.507	0.493	1.000
Bicycle	0.006	0.027	0.033	0.012	0.004	0.016	0.128	0.121	0.248
Foot	0.066	0.176	0.241	0.070	0.084	0.154	1.068	1.142	2.210
Total persons	0.171	0.615	0.786	0.318	0.205	0.523	3.242	3.488	6.730

Trip generation

514 units

Mode	AM			PM			Daily		
	In	Out	Total	In	Out	Total	In	Out	Total
Underground	6	42	48	12	10	23	157	169	327
Bus	11	77	88	40	13	53	259	326	585
Motorcycle	1	3	4	2	1	3	22	20	42
Car Driver	18	60	78	41	20	60	352	375	727
Car Passenger	16	30	45	27	15	42	261	253	514
Bicycle	3	14	17	6	2	8	66	62	128
Foot	34	90	124	36	43	79	549	587	1136
Total persons	88	316	404	163	105	269	1666	1793	3459

Appendix K

SERVICING DEMAND

Imperial Wharf and Bow Quarter - RESIDENTIAL SERVICING TRIPS

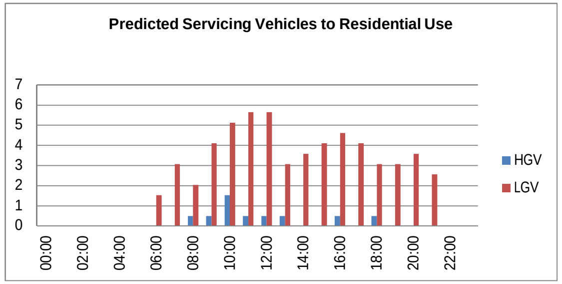
Residential Goods Trips

Trip Generation

Mode	AM (0800-0900)			PM (1700-1800)		
	In	Out	Total	In	Out	Total
LGVS	2	2	4	4	4	8
HGVS	1	1	1	0	0	0
Total	3	3	5	4	4	8

Trip Rate

Mode	AM (0800-0900)			PM (1700-1800)		
	In	Out	Total	In	Out	Total
LGVS	0.004	0.004	0.008	0.008	0.008	0.016
HGVS	0.001	0.001	0.002	0.000	0.000	0.000
Total	0.005	0.005	0.010	0.008	0.008	0.016



				Units	702
Time	LGV	HGV			
00:00	0	0			
01:00	0	0			
02:00	0	0			
03:00	0	0			
04:00	0	0			
05:00	0	0			
06:00	2	0			
07:00	3	0			
08:00	2	1			
09:00	4	1			
10:00	5	2			
11:00	6	1			
12:00	6	1			
13:00	3	1			
14:00	4	0			
15:00	4	0			
16:00	5	1			
17:00	4	0			
18:00	3	1			
19:00	3	0			
20:00	4	0			
21:00	3	0			
22:00	0	0			
23:00	0	0			

Time							Total		Rate/unit		
							Units	2518			
							LGV	HGV	LGV	HGV	
0600-0700							7	0	0.003	0.000	0.003
0700-0800							15	1	0.006	0.000	0.006
0800-0900							11	3	0.004	0.001	0.005
0900-1000							20	2	0.008	0.001	0.009
1000-1100							24	8	0.010	0.003	0.013
1100-1200							27	2	0.011	0.001	0.012
1200-1300							28	2	0.011	0.001	0.012
1300-1400							15	2	0.006	0.001	0.007
1400-1500							18	0	0.007	0.000	0.007
1500-1600							21	1	0.008	0.000	0.008
1600-1700							23	3	0.009	0.001	0.010
1700-1800							19	0	0.008	0.000	0.008
1800-1900							16	2	0.006	0.001	0.007
1900-2000							16	1	0.006	0.000	0.006
2000-2100							17	0	0.007	0.000	0.007
2100-2200							13	0	0.005	0.000	0.005
Total							290	27	0.115	0.010	

Hillingdon Gardens		
	Units	**514**
Time	LGV	HGV
0600-0700	1.5	0.0
0700-0800	3.1	0.0
0800-0900	2.1	0.5
0900-1000	4.1	0.5
1000-1100	5.1	1.5
1100-1200	5.7	0.5
1200-1300	5.7	0.5
1300-1400	3.1	0.5
1400-1500	3.6	0.0
1500-1600	4.1	0.0
1600-1700	4.6	0.5
1700-1800	4.1	0.0
1800-1900	3.1	0.5
1900-2000	3.1	0.0
2000-2100	3.6	0.0
2100-2200	2.6	0.0
Total	59	5

Type	**Surveys**	**%**	**Hillingdon Gardens**
Furniture	5	2%	1
Takeaway	15	5%	3
Supermarl	11	3%	2
Maintenan	35	11%	7
Post	266	80%	51
Total	332		**64**

TRICS 7.6.2
Trip Rate P Gross floor area

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use 06 - HOTEL FOOD & DRINK
Category C - PUB/RESTAURANT
VEHICLES

Selected regions and areas:

1	GREATER LONDON		
	BN	BARNET	1 days
	EN	ENFIELD	1 days
	HD	HILLINGDC	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: Gross floor area
Actual Ran 724 to 850 (units: sqm)
Range Sele 220 to 1123 (units: sqm)

Public Transport Provision:
Selection b Include all surveys

Date Range 01/01/11 to 30/09/16

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:
Tuesday 1 days
Wednesda 1 days
Thursday 1 days
This data displays the number of selected surveys by day of the week.

Selected survey types:
Manual co 3 days
Directional 0 days
This data d the total a whilst ATC surveys are undertaking using machines.

Selected Locations:

Town Cent	0
Edge of To	0
Suburban /	0
Edge of To	2
Neighbour	1
Free Stand	0
Not Known	0

This data d Edge of Tc Suburban Neighbour Edge of Tc Town Centre and Not Known.

Selected Location Sub Categories:

Industrial Z	0
Commercia	0
Developme	0
Residential	2
Retail Zone	0
Built-Up Zc	0
Village	1
Out of Tow	0
High Street	0
No Sub Cat	0

This data d Industrial Z Developm Residentia Retail Zone Built-Up Zc Village Out of Tov High Street and No Sub Category.

Secondary Filtering selection:

Use Class:
AA 3 days
This data d which can be found within the Library module of TRICS®.

Population within 1 mile:
1,000 or Le 1 days
15,001 to 2 1 days
25,001 to 5 1 days
This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:
250,001 to 2 days
500,001 or 1 days
This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:
1.1 to 1.5 3 days

This data d within a radius of 5-miles of selected survey sites.

Travel Plan:
No 3 days
This data d and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:
1a (Low) V‹ 1 days
1b Very po 1 days
2 Poor 1 days
This data displays the number of selected surveys with PTAL Ratings.

LIST OF SITES relevant to selection parameters

1 BN-06-C-0: PUB/REST/ BARNET
BARNET ROAD

BARNET
Edge of Town
Residential Zone
Total Gross floor area: 724 sqm
Survey dat WEDNESD/ ######## Survey Typ MANUAL

2 EN-06-C-0: PUB/REST/ ENFIELD
CATTLEGATE ROAD

ENFIELD
Neighbourhood Centre (PPS6 Local Centre)
Village
Total Gross floor area: 770 sqm
Survey dat TUESDAY ######## Survey Typ MANUAL

3 HD-06-C-0: HARVESTEI HILLINGDON
BURY STREET

RUISLIP
Edge of Town
Residential Zone
Total Gross floor area: 850 sqm
Survey dat THURSDAY ######## Survey Typ MANUAL

This sectioı it displays the selecte the day of and whether the survey was a manual classified count or an ATC count.

Manually Deselected Sites

Site Ref	Reason for Deselection
CI-06-C-01	location
HG-06-C-0:	location
HK-06-C-0:	location
IS-06-C-01	location
IS-06-C-02	location
LB-06-C-01	location
WH-06-C-(	location

TRIP RATE FOOD & DRINK/C - PUB/RESTAURANT
Calculation Factor: 100 sqm
Count Type: OGVS

	ARRIVALS			DEPARTURES			TOTALS		
	No.	Ave.	Trip	No.	Ave.	Trip	No.	Ave.	Trip
Time Rang‹	Days	GFA	Rate	Days	GFA	Rate	Days	GFA	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									
07:00-08:0	1	850	0.235	1	850	0.118	1	850	0.353
08:00-09:0	1	850	0	1	850	0.118	1	850	0.118
09:00-10:0	1	850	0	1	850	0	1	850	0
10:00-11:0	3	781	0	3	781	0	3	781	0
11:00-12:0	3	781	0.171	3	781	0.171	3	781	0.342
12:00-13:0	3	781	0.043	3	781	0.043	3	781	0.086
13:00-14:0	3	781	0	3	781	0	3	781	0
14:00-15:0	3	781	0.043	3	781	0.043	3	781	0.086
15:00-16:0	3	781	0	3	781	0	3	781	0
16:00-17:0	3	781	0	3	781	0	3	781	0
17:00-18:0	3	781	0	3	781	0	3	781	0
18:00-19:0	3	781	0	3	781	0	3	781	0
19:00-20:0	3	781	0	3	781	0	3	781	0
20:00-21:0	3	781	0	3	781	0	3	781	0
21:00-22:0	3	781	0	3	781	0	3	781	0

22:00-23:0	3	781	0	3	781	0	3	781	0
23:00-24:0	3	781	0	3	781	0	3	781	0
Daily Trip Rates:			0.492			0.493			0.985

TRIP RATE FOOD & DRINK/C - PUB/RESTAURANT
Calculation Factor: 100 sqm
Count Type: LGVS

		ARRIVALS			DEPARTURES			TOTALS	
	No.	Ave.	Trip	No.	Ave.	Trip	No.	Ave.	Trip
Time Rang	Days	GFA	Rate	Days	GFA	Rate	Days	GFA	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									
07:00-08:0	1	850	0.118	1	850	0	1	850	0.118
08:00-09:0	1	850	0	1	850	0	1	850	0
09:00-10:0	1	850	0	1	850	0.118	1	850	0.118
10:00-11:0	3	781	0.213	3	781	0.213	3	781	0.426
11:00-12:0	3	781	0.128	3	781	0.128	3	781	0.256
12:00-13:0	3	781	0.085	3	781	0.085	3	781	0.17
13:00-14:0	3	781	0.085	3	781	0.085	3	781	0.17
14:00-15:0	3	781	0.171	3	781	0.043	3	781	0.214
15:00-16:0	3	781	0	3	781	0.085	3	781	0.085
16:00-17:0	3	781	0.085	3	781	0.085	3	781	0.17
17:00-18:0	3	781	0.171	3	781	0.128	3	781	0.299
18:00-19:0	3	781	0.043	3	781	0.128	3	781	0.171
19:00-20:0	3	781	0.043	3	781	0.043	3	781	0.086
20:00-21:0	3	781	0.085	3	781	0	3	781	0.085
21:00-22:0	3	781	0	3	781	0.043	3	781	0.043
22:00-23:0	3	781	0	3	781	0.043	3	781	0.043
23:00-24:0	3	781	0.043	3	781	0.043	3	781	0.086
Daily Trip Rates:			1.27			1.27			2.54

Parameter summary

Trip rate pa	724 - 850 (units: sqm)
Survey dat	01/01/11 - 30/09/16
Number of	3
Number of	0
Number of	0
Surveys au	0
Surveys ma	7

This sectio followed b the total n the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

Appendix L

HIGHWAY MODELLING ADDENDUM

Public

Hillingdon Gateway

Traffic Modelling Addendum

HILLINGDON GATEWAY

TRAFFIC MODELLING ADDENDUM

MB Hillingdon Ltd

Report

Project no: 70028642
Date: 17/11/2017

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WSP House
70 Chancery Lane
London
WC2A 1AF

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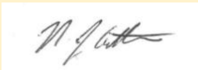
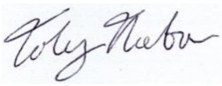
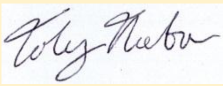
www.wsp.com

QUALITY MANAGEMENT

ISSUE/REVISION	FIRST ISSUE	REVISION 1	REVISION 2	REVISION 3
Remarks	Issue	New scenario added to analysis		
Date	19/10/2017	17/11/2017		
Prepared by	Anastasia Thomadaki	John Allen		
Signature				
Checked by	Nick Cottman	Nick Cottman		
Signature				
Authorised by	Toby Thornton	Toby Thornton		
Signature				
Project number	70028642	70028642		
Report number	001			
File reference				

PRODUCTION TEAM

CLIENT

MB Hillingdon Ltd

Henry Wood House

2 Riding House Street

London

W1W 7FA

WSP

Assistant Engineer	Anastasia Thomadaki
Principal Engineer	John Allen
Technical Director	Nick Cottman
Technical Director	Tim Gabbitas

TABLE OF CONTENTS

1 INTRODUCTION

1.1 BACKGROUND

1.1.1 The Hillingdon Gateway Transport Assessment (TA) was submitted to London Borough of Hillingdon (LBH) in August 2017. The TA was prepared in support of a planning application for Hillingdon Gateway (the 'Proposed Development'), which will comprise 377 residential dwellings together with commercial and retail units. The assessment outlined in the TA and this report assumes 245 residential car parking spaces, 5 commercial / visitor spaces and 4 car club parking spaces, together with 657 residential cycle parking spaces.

1.1.2 The TA (August 2017) noted that traffic modelling work was on-going at the point of submission, and was subject to consultation with Transport for London (TfL) and LBH officers. The TA identified that upon completion of the modelling assessment work an addendum report would be produced. This report forms the Traffic Modelling Addendum to the TA.

1.1.3 The impact of the Proposed Development on the surrounding road network was assessed using the traffic modelling software LinSig and VISSIM as agreed with TfL. This addendum report presents the LinSig and VISSIM traffic modelling work, including a description of how the models were built, calibrated and validated, a presentation of future year modelling results, and result of proposed mitigation.

1.2 TRAFFIC SURVEYS

1.2.1 In order to ensure a robust assessment of the Proposed Development impact, a comprehensive survey of traffic was conducted. The surveys captured manual classified counts (MCC), queue length, saturation flows, degree of saturation and journey times at the locations listed in 'Appendix I' of the TA. The surveys were conducted on a weekday (Thursday 12th January 2017) for the periods 07:00-10:00 and 16:00-19:00, and for Saturday (14th January 2017) for the period 10:30-14:30. It was subsequently agreed with TfL that an assessment of Saturday conditions was not required.

1.2.2 Automatic Traffic Counts (ATCs) were also carried out at locations detailed in 'Appendix I' of the TA over the period between 12th January 2017 and 6th February 2017.

1.2.3 Full details of the traffic surveys can be found in 'Appendix I' of the TA.

1.3 MODELLING METHODOLOGY

1.3.1 The modelling methodology was agreed with TfL during the pre-application meeting (23rd February 2017) and documented by TfL in the '*Planning Application Modelling Overview Document*' (9th March 17).

1.3.2 The modelled peak hours were based on the peak hours for traffic generation taken from traffic surveys in the AM and PM peaks on a typical weekday. A second AM peak was developed for the VISSIM model which identified maximum queues and longer journey times The modelled peaks are as follows:

- AM peak hour 1: 07:15 – 08:15
- AM peak hour 2: 07:45 – 08:45
- PM peak hour: 16:30 – 17:30

1.3.3 Both LinSig v.3 and VISSIM v.8 software were used to assess the local junction and network impact of the Proposed Development. Base models were calibrated and validated against 2017 highway network, observed demand and network performance. Models were developed according to TfL's Modelling Guidelines (v.3). The base VISSIM models have been completed and agreed by TfL.

1.4 ASSESSED TRAFFIC SCENARIOS

1.4.1 It has been assumed that the development opening year will be 2021. A future forecast year of five years after development opening was used for assessment. These assessment years were agreed with LBH and TfL in scoping ('Appendix A' of the TA).

1.4.2 Analysis of traffic surveys in 2017, compared against historical surveys from 2010 showed that there was no increase in traffic volumes on the highway network in recent years. It was therefore agreed with TfL and LBH that no growth factors need to be applied. This agreement is set out in 'Appendix A' of the TA.

1.4.3 Instead, traffic flows generated by four committed developments in the area were added to base year traffic flows to derive the forecast year flows. LBH also requested the inclusion of traffic flows associated with a consented office development at Hillingdon Circus in the committed traffic flows. The development was approved in 1997 and the access junction (roundabout on Western Avenue) constructed, however the office has not been constructed. Two additional traffic flow scenarios were therefore developed (Scenario 2a and 3a) to include this office development in the committed traffic flows.

1.4.4 For both the weekday AM and PM peaks, the traffic flow diagrams analysed the following four scenarios:

- **Scenario 1** – 2017 Baseline
- **Scenario 2** – 2017 Baseline + Committed Development
- **Scenario 2a** – 2017 Baseline + Committed Development (including office)
- **Scenario 3** – 2017 Baseline + Committed Development + Proposed Development (with highway mitigation)
- **Scenario 3a** – 2017 Baseline + Committed Development (including office) + Proposed Development (with highway mitigation)
- **Scenario 4** – 2017 Baseline + Proposed Development (with highway mitigation)

1.4.5 The Committed Development trip generation is detailed in Section 6.5 of the TA.

1.4.6 The traffic flow diagrams in 'Appendix J' of the TA show the traffic flows for these scenarios in both Passenger Car Units (PCUs) and vehicles.

2 EXISTING AND FUTURE TRAFFIC FLOWS

2.1 DEVELOPMENT TRAFFIC FLOWS

2.1.1 This section describes an analysis of the actual and percentage change in traffic flows passing through Hillingdon Circus (junction of A437 Long Lane, Freezeland Way and Western Avenue) during the AM and PM peak hours as a result of the Proposed Development.

2.1.2 **Table 2-1** and **Table 2-2** show the vehicle turning movements at Hillingdon Circus for the Committed Development, the Proposed Development for the AM and PM peaks respectively. Also shown is the impact of the Committed Development on the base scenario (Scenario 1), and the impact of the Proposed Development on the base + committed development scenario (Scenario 2).

Table 2-1: Hillingdon Circus Turning Flows in the AM peak

Junction Arm	Turning Movement	Commit. Dev.	Proposed Dev.	Scenario 1 (Base)	Scenario 2 (Base+CD)	Scenario 3 (Base+CD+ Dev)	Commit. Dev. Impact %	Proposed Dev. Impact %
Long Lane southbound	Left Turn	0	6	13	13	19	0%	31%
	Ahead	37	0	715	753	753	5%	0%
	Right Turn	19	0	319	338	338	6%	0%
Freezeland Way	Left Turn	27	18	215	242	261	11%	7%
	Ahead	9	21	481	490	512	2%	4%
	Right Turn	7	40	129	136	176	5%	23%
Long Lane northbound	Left Turn	25	6	169	194	200	13%	3%
	Ahead	57	0	710	767	767	7%	0%
Western Avenue	Left Turn	20	0	607	627	627	3%	0%
	Ahead	0	14	6	6	20	0%	71%
	Right Turn	27	0	236	263	263	10%	0%
Total		**229**	**106**	**3,830**	**3,601**	**3,936**	**6%**	**3%**

2.1.3 The comparisons show that the Proposed Development would represent 3% of total traffic flows through Hillingdon Circus during both the AM and PM peak hours. In actual vehicle movements, this equates to an additional 106 movements through the junction during the AM peak hour and an additional 100 movements through the junction during the PM peak hour, or between 1 and 2 additional vehicles per minute on average passing through the junction during each peak.

2.1.4 The maximum Proposed Development flow proportion for individual turning movements at the junction are for movements that currently accommodate relatively low vehicle flows. The maximum impact during the AM peak hour is forecast to be 71% of total flows on the Western Avenue eastbound ahead movement, which equates to 14 vehicle trips across the peak hour (or approximately one vehicle movement every 4-5 minutes). The maximum Proposed Development flow proportion during the PM peak hour is forecast to be 87% on the Long Lane southbound left turn movement, which equates to 14 vehicle trips across the peak hour (or approximately one vehicle movement every 4-5 minutes).

Table 2-2: Hillingdon Circus Turning Flows in the PM peak

JUNCTION ARM	TURNING MOVEMENT	COMMIT. DEV.	PROPOSED DEV.	SCENARIO 1 (BASE)	SCENARIO 2 (BASE+CD)	SCENARIO 3 (BASE+CD+ DEV)	COMMIT. DEV. IMPACT %	PROPOSED DEV. IMPACT %
Long Lane southbound	Left Turn	0	14	2	2	16	0%	87%
	Ahead	6	0	498	505	505	1%	0%
	Right Turn	7	0	220	227	227	3%	0%
Freezeland Way	Left Turn	2	8	243	246	254	1%	3%
	Ahead	3	12	494	497	509	1%	2%
	Right Turn	5	20	260	265	285	2%	7%
Long Lane northbound	Left Turn	4	14	157	161	175	3%	8%
	Ahead	14	0	755	769	769	2%	0%
Western Avenue	Left Turn	17	0	709	726	726	2%	0%
	Ahead	0	31	12	12	43	0%	72%
	Right Turn	2	0	295	298	298	1%	0%
Total		**61**	**100**	**3,708**	**3,647**	**3,808**	**2%**	**3%**

2.1.5 Overall, eight of the 12 junction movements would see the Proposed Development contributing less than 5% of the total traffic flow during both the AM and PM peak hours.

2.1.6 Notwithstanding the traffic modelling results reported later in this document, this level of traffic increase is not anticipated to have a significant impact on the operation of the local network.

3 LINSIG MODELLING

3.1 MODEL DEVELOPMENT

3.1.1 The junction operation with the Proposed Development was assessed using LinSig. A Base model including the A437 Long Lane / Western Avenue / Freezeland Way junction (Hillingdon Circus) and the staggered pedestrian crossing of Long Lane, south of the junction was calibrated and validated for the AM and PM peaks according to TfL's Modelling Guidelines v.3. The extent of the modelled network is shown in **Figure 3-1**. The effect of blocking back through upstream stoplines was accounted for in the LinSig model using 'negative bonus green' time (i.e. traffic signal green time during which traffic at the stopline is blocked by a downstream queue).

3.1.2 The LinSig models were reviewed by TfL and accepted as fit-for-purpose for the assessment of traffic impacts associated with the Proposed Development. The Proposed Development model was derived from the accepted Base model by including the Proposed Development trips.

The scenarios analysed in LinSig were:

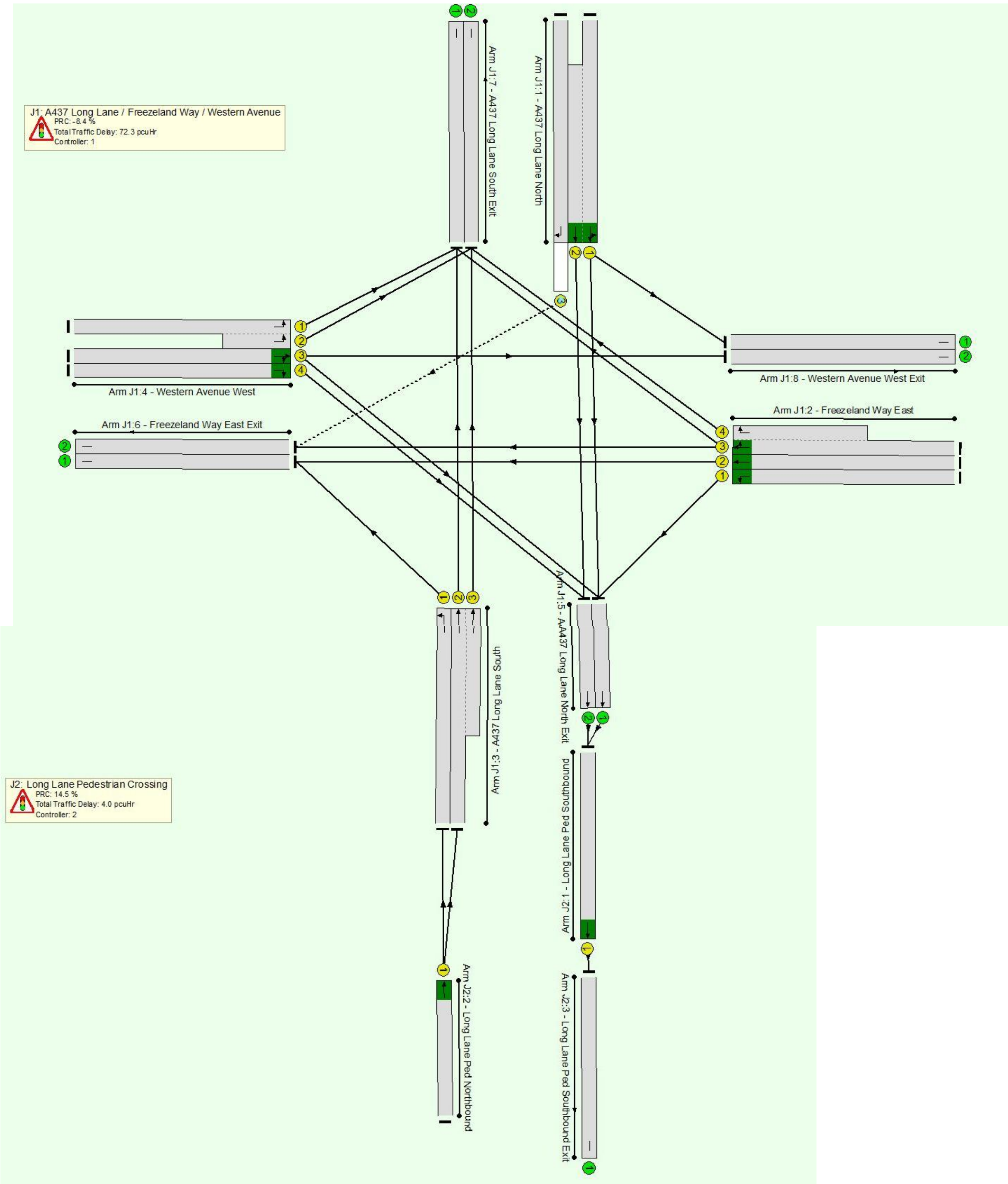
- **Scenario 1** – 2017 Baseline
- **Scenario 2** – 2017 Baseline + Committed Development
- **Scenario 2a** – 2017 Baseline + Committed Development (including office)
- **Scenario 3** – 2017 Baseline + Committed Development + Proposed Development (with highway mitigation)
- **Scenario 3a** – 2017 Baseline + Committed Development (including office) + Proposed Development (with highway mitigation)
- **Scenario 4** – 2017 Baseline + Proposed Development (with highway mitigation)

3.1.3 The proposed highway mitigation scheme improves pedestrian crossings on the northern, eastern and southern arms of the Hillingdon Circus junction. Pedestrian islands are widened and other improvements proposed to enhance safety and ease access for pedestrians and cyclists. The southbound Long Lane approach is proposed to be re-aligned to accommodate widening the central pedestrian island. To improve access to the site from the east, a right turn facility is proposed on Freezeland Way. The proposed highway mitigation scheme drawing (70028642-SK-13 Rev B) is provided in 'Appendix F' of the TA.

3.1.4 The LinSig results for the Base and Proposed Development scenarios are set out below. **Table 3-1** and **Table 3-2** show the impact of the Proposed Development on degree of saturation (DoS) at the Hillingdon Circus junction against the Base and Base + Committed Development for both peaks. DoS values less than 80% are shown in green, 80-90% in amber and greater than 90% in red.

3.1.5 The cycle time is unchanged between the 2017 Base and the Proposed Development scenarios. The Scenario 3 and 4 PM model include a small reallocation of green time (1 sec) from the northbound and southbound movement to the eastbound.

Figure 3-1: Extent of network modelled in LinSig



3.2 DOS AND QUEUE LENGTH RESULTS

3.2.1 The Base model (Scenario 1) shows that Hillingdon Circus operates very close to capacity in the AM peak on the A437 Long Lane north approach (all movements), Freezeland Way (left and ahead movements) and Western Avenue (right turn). The junction operates with greater levels of spare capacity in the PM peak, however the Freezeland Way (left) and Western Avenue (right) movements are still very close to capacity.

3.2.2 **Degree of Saturation Results**

3.2.3 The Base + Proposed Development (Scenario 4) DoS results forecast minor changes compared to the Base (Scenario 1) in the AM and PM peaks. The maximum DoS difference is forecast to be 13% and 14% for the Western Avenue ahead and right lane for the AM and PM peaks respectively, however this approach is still forecast to operate within capacity (70-80% DoS). The impact of the development on the critical approaches (over 90%) is forecast to be small in both peaks, limited to a 2% increase on the A437 Long Lane north ahead and left lane. One movement (Freezeland Way east left turn lane) was forecast to operate over 90% DoS in the AM peak due to Proposed Development traffic.

3.2.4 The Base + Committed (Scenario 2) results forecast that the AM peak will no longer operate within capacity at the A437 Long Lane north right turn and the Freezeland Way east left turn. The addition of Proposed Development (Scenario 3) is forecast to increase the DoS on the Freezeland Way east left turn by 7% in the AM peak (from 100% to 107%).

3.2.5 The PM peak shows minor changes in the Proposed Development (Scenario 3) compared with the Base + Committed Development (Scenario 2) and is forecast to operate within capacity. The maximum DoS difference is forecast to be 13% and 15% for the Western Avenue ahead and right lane for the AM and PM peaks respectively, however these movements were still forecast to operate within capacity with the Proposed Development. The impact of the Proposed Development on the critical approaches (over 90%) is small in the PM peak.

3.2.6 **Mean Max Queue Lengths**

3.2.7 **Table 3-3** shows the Mean Max Queue (MMQ) predicted by LinSig at the Hillingdon Circus junction for both scenarios in the AM and PM peaks.

3.2.8 The queue length results for the Base (Scenario 1) and the Proposed Development (Scenario 4) models shows a maximum increase in MMQ of 3 PCUs on Freezeland Way left turn in the AM peak and 2 PCUs on Western Avenue ahead and right turn on the PM peak. Overall, the queue length impact of the Proposed Development is small.

3.2.9 The queue length results for the Base + Committed (Scenario 2) and the Base + Committed + Proposed Development (Scenario 3) shows a maximum increase in MMQ of 7 PCUs Freezeland Way left turn in the AM peak and 2 PCUs (Freezeland Way left, and Western Avenue right turn) in the PM peak. Overall, the incremental impact of the Proposed Development on queue lengths is small.

Table 3-1 Degree of Saturation for Base and Proposed Scenarios (no Committed Development)

Approach Name	AM Peak			PM Peak		
	Base (Scn. 1)	Base + Proposed Development (Scn. 4)	% Difference	Base (Scn. 1)	Base + Proposed Development (Scn. 4)	% Difference
A437 Long Lane North Ahead Left	92	94	2	52	56	4
A437 Long Lane North Ahead Right	94	94	0	52	56	4
A437 Long Lane North Right	98	98	0	69	71	2
Freezeland Way East Left	89	96	7	99	95	-4
Freezeland Way East Ahead	95	95	0	78	79	1
Freezeland Way East Ahead Right	57	64	7	86	82	-4
Freezeland Way East Right	57	64	7	86	82	-4
A437 Long Lane South Left	32	33	1	29	33	4
A437 Long Lane South Ahead	84	84	0	79	81	2
A437 Long Lane South Ahead	84	84	0	79	81	2
Western Avenue West Right Left	88	88	0	84	84	0
Western Avenue West Ahead Right	57	70	13	65	80	14
Western Avenue West Right	93	93	0	90	90	0

Table 3-2 Degree of Saturation for Base and Proposed Scenarios (with Committed Development)

Approach Name	AM Peak			PM Peak		
	Base + Committed Development (Scn. 2)	Base + Committed + Proposed Development (Scn. 3)	% Difference	Base + Committed Development (Scn. 2)	Base + Committed + Proposed Development (Scn. 3)	% Difference
A437 Long Lane North Ahead Left	97	98	1	54	57	3
A437 Long Lane North Ahead Right	99	99	0	54	57	3
A437 Long Lane North Right	113	113	0	73	73	0
Freezeland Way East Left	100	107	7	93	96	3
Freezeland Way East Ahead	95	95	0	75	80	5
Freezeland Way East Ahead Right	59	66	7	82	82	0
Freezeland Way East Right	59	66	7	82	82	0
A437 Long Lane South Left	36	38	2	31	33	2
A437 Long Lane South Ahead	95	95	0	83	83	0
A437 Long Lane South Ahead	95	95	0	83	83	0
Western Avenue West Right Left	91	91	0	87	87	0
Western Avenue West Ahead Right	72	85	13	66	81	15
Western Avenue West Right	93	93	0	90	90	0

Table 3-3 Mean Max Queue Base and Proposed Scenarios (no Committed Development)

Approach Name	AM Peak			PM Peak		
	Base (Scn. 1)	Base + Proposed Development (Scn. 4)	Difference (PCU)	Base (Scn. 1)	Base + Proposed Development (Scn. 4)	Difference (PCU)
A437 Long Lane North Ahead Left	16	17	1	7	8	1
A437 Long Lane North Ahead Right	-	-	-	-	-	-
A437 Long Lane North Right	16	16	0	5	5	0
Freezeland Way East Left	10	13	3	14	12	-2
Freezeland Way East Ahead	17	17	0	9	10	1
Freezeland Way East Ahead Right	7	8	1	11	11	-1
Freezeland Way East Right	-	-	-	-	-	-
A437 Long Lane South Left	4	4	0	4	4	0
A437 Long Lane South Ahead	14	14	0	11	12	0
A437 Long Lane South Ahead	-	-	-	-	-	-
Western Avenue West Right Left	17	17	0	13	13	0
Western Avenue West Ahead Right	4	5	1	5	7	2
Western Avenue West Right	8	8	0	7	7	0

Table 3-4 Mean Max Queue Base and Proposed Scenarios (with Committed Development)

Approach Name	AM Peak			PM Peak		
	Base + Committed Development (Scn. 2)	Base + Committed + Proposed Development (Scn. 3)	Difference (PCU)	Base + Committed Development (Scn. 2)	Base + Committed + Proposed Development (Scn. 3)	Difference (PCU)
A437 Long Lane North Ahead Left	22	23	1	8	8	0
A437 Long Lane North Ahead Right	-	-	-	-	-	-
A437 Long Lane North Right	34	34	0	6	6	0
Freezeland Way East Left	15	22	7	11	13	2
Freezeland Way East Ahead	17	17	0	9	10	1
Freezeland Way East Ahead Right	7	8	1	11	11	0
Freezeland Way East Right	-	-	-	-	-	-
A437 Long Lane South Left	5	5	0	4	4	0
A437 Long Lane South Ahead	21	21	0	13	13	0
A437 Long Lane South Ahead	-	-	-	-	-	-
Western Avenue West Right Left	19	19	0	15	15	0
Western Avenue West Ahead Right	5	7	2	5	7	2
Western Avenue West Right	8	8	0	7	7	0

3.3 DEVELOPMENT IMPACT WITH OFFICE

3.3.1 **Table 3-5** and **Table 3-6** show the impact of the Proposed Development, after taking account of the committed developments, including the office development. The DoS results show that the junction is forecast to operate over capacity in the AM peak and at capacity in the PM peak on several arms. In particular the Long Lane north right turn and Freezeland Way left turn are operating at or over 100% DoS.

3.3.2 However, the relative impact of the Proposed Development is the same as presented in the previous sections, where the office development was excluded from the committed development. The greatest impact on DoS was seen on the Western Avenue ahead and right lane in the AM (13% increase) and PM (14% increase), however in both cases this approach is forecast to operate within practical capacity.

3.3.3 As implied by the high DoS values, LINSIG predicts long queues on Long Lane north approach with committed developments in place. The Proposed Development results in only a small increase in queue length on junction approaches. The largest increase in queue length was on the Freezeland Way left turn with 7 PCUs in the AM peak and 3 PCUs in the PM peak.

Table 3-5 Degree of Saturation for Base and Proposed Scenarios (with Committed Development including Office)

Approach Name	AM Peak			PM Peak		
	Base + Committed incl. office (Scn. 2a)	Base + Committed incl. office + Proposed Development (Scn. 3a)	% Difference	Base + Committed incl. office (Scn. 2a)	Base + Committed incl. office + Proposed Development (Scn. 3a)	% Difference
A437 Long Lane North Ahead Left	97	98	2	54	57	2
A437 Long Lane North Ahead Right	99	99	0	54	57	2
A437 Long Lane North Right	120	120	0	74	74	0
Freezeland Way East Left	100	107	7	93	96	3
Freezeland Way East Ahead	95	95	0	76	81	5
Freezeland Way East Ahead Right	64	71	7	82	82	0
Freezeland Way East Right	64	71	7	82	82	0
A437 Long Lane South Left	40	41	1	31	34	3
A437 Long Lane South Ahead	95	95	0	83	83	0
A437 Long Lane South Ahead	95	95	0	83	83	0
Western Avenue West Right Left	91	91	0	91	91	0
Western Avenue West Ahead Right	72	85	13	76	90	14
Western Avenue West Right	93	93	0	90	90	0

Table 3-6 Mean Max Queue Base and Proposed Scenarios (with Committed Development including Office)

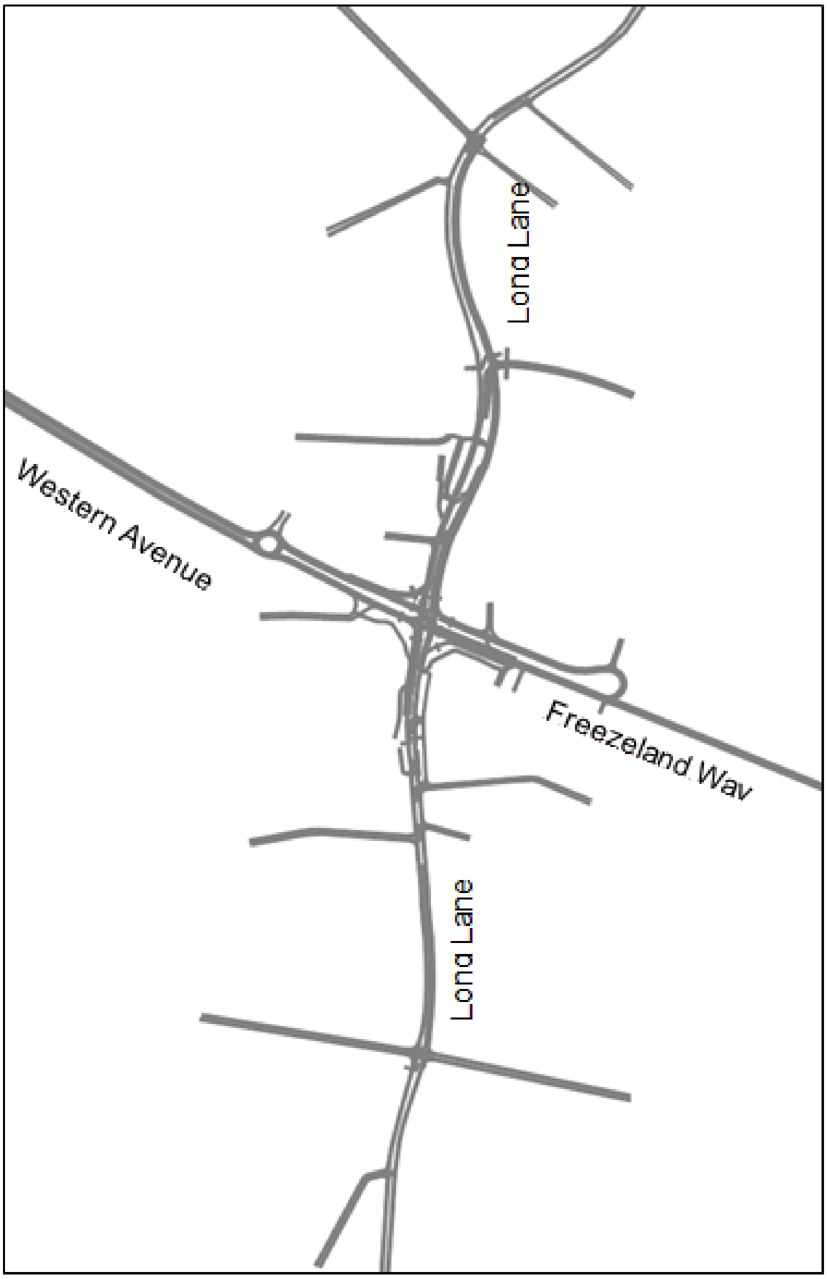
Approach Name	AM Peak			PM Peak		
	Base + Committed incl. office (Scn. 2a)	Base + Committed incl. office + Proposed Development (Scn. 3a)	Difference (PCU)	Base + Committed incl. office (Scn. 2a)	Base + Committed incl. office + Proposed Development (Scn. 3a)	Difference (PCU)
A437 Long Lane North Ahead Left	22	23	1	8	8	0
A437 Long Lane North Ahead Right	-	-	-	-	-	-
A437 Long Lane North Right	45	45	0	6	6	0
Freezeland Way East Left	15	22	7	11	13	2
Freezeland Way East Ahead	17	17	0	9	10	1
Freezeland Way East Ahead Right	8	9	1	11	11	0
Freezeland Way East Right	-	-	-	-	-	-
A437 Long Lane South Left	5	6	0	4	4	0
A437 Long Lane South Ahead	21	21	0	13	13	0
A437 Long Lane South Ahead	-	-	-	-	-	-
Western Avenue West Right Left	19	19	0	18	18	0
Western Avenue West Ahead Right	5	7	2	7	10	3
Western Avenue West Right	8	8	0	7	7	0

4 VISSIM MODELLING

4.1 MODEL DEVELOPMENT

4.1.1 A VISSIM micro-simulation model was built, calibrated and validated to represent the traffic conditions observed during the traffic surveys (12th January 2017). The VISSIM model covers two hours in the AM peak and two hours in the PM peak, including a 30 minute 'warm-up' period in both peaks. The VISSIM model extent is shown on **Figure 4-1**.

Figure 4-1: VISSIM Model Extent



4.1.2 The modelled network includes the following junctions:

- A437 Long lane/ Freezeland Way/ Western Avenue;
- A437 Long Lane/ Ryefield Avenue/ Sweetcroft Lane;
- B466 Long Lane/ A40 on slip/ A437 Long Lane.
- A437 Long Lane/ Tudor Way;
- A437 Long Lane/ Granville Road;
- Western Avenue/ Hercies Road;
- Freezeland Way WB left turn to Long Lane (Londis parking) and Freezeland Way EB right turn;
- Freezeland Way EB/ A40 off slip/ Freezeland Way WB;
- A437 Long lane/ Hillingdon Station car park;
- Western Avenue/ A40 on slip/ AA40 on slip roundabout;
- B466 Long Lane/ Halford Road;
- B466 Long Lane/ Bridge Way/ Swakeleys Drive;
- B466 Long Lane/ Turnstone Close; and
- A437 Long Lane two access points to The Swallow Public House.

4.1.3 The scenarios analysed in VISSIM were:

- **Scenario 1** – 2017 Baseline
- **Scenario 2** – 2017 Baseline + Committed Development
- **Scenario 2a** – 2017 Baseline + Committed Development (including office)
- **Scenario 3** – 2017 Baseline + Committed Development + Proposed Development (with highway mitigation)
- **Scenario 3a** – 2017 Baseline + Committed Development (including office) + Proposed Development (with highway mitigation)
- **Scenario 4** – 2017 Baseline + Proposed Development (with highway mitigation)

4.1.4 The base model was calibrated and validated according to TfL Modelling Guidelines (v.3.0). The model files were reviewed by TfL and accepted as fit for purpose for the assessment of traffic impacts associated with the Proposed Development.

4.2 JOURNEY TIMES

4.2.1 The journey times forecast by the VISSIM model for the Proposed Development scenarios were compared against the travel times forecast in the Baseline scenarios. Journey time results were calculated from the model as an average of 20 individual simulation runs for each scenario, as recommended by TfL. **Figure 4-2** shows the general traffic and bus journey time routes.

4.2.2 **Table 4-1** shows the 2017 Base (Scenario 1) and Proposed Development (Scenario 4) journey times for the peaks tested.

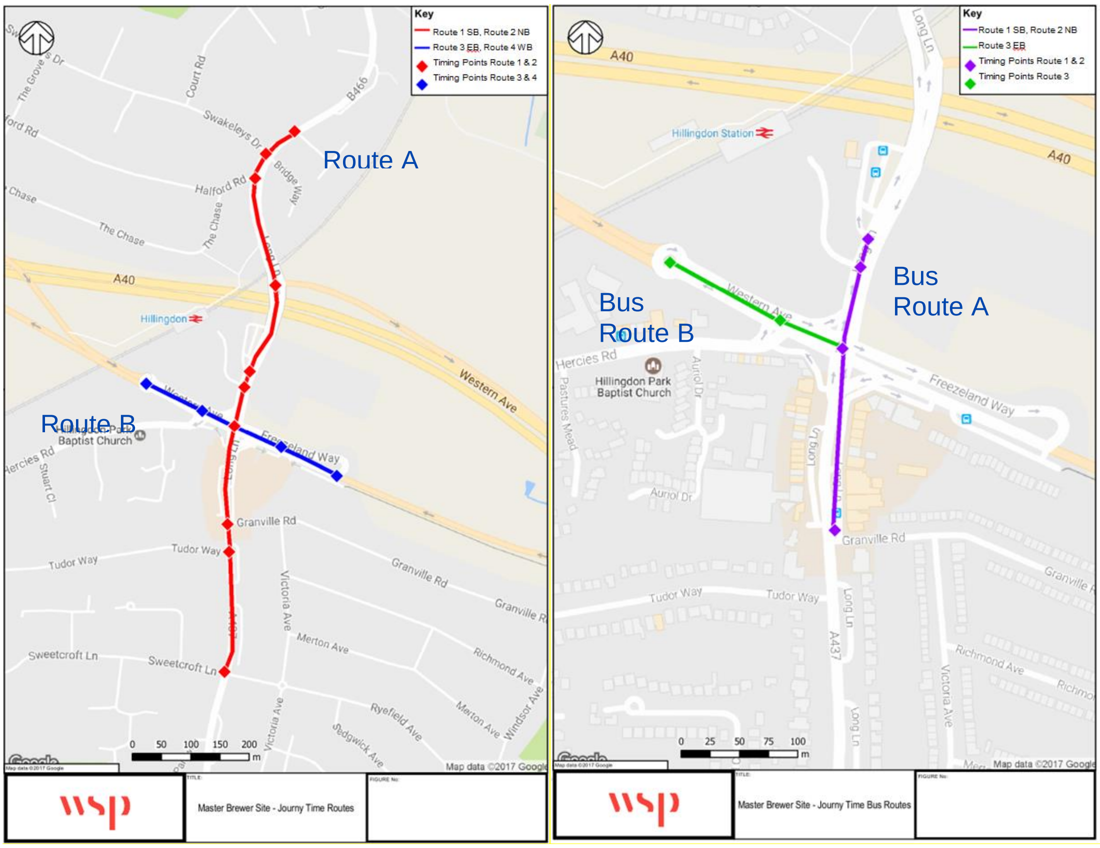


Figure 4-2 General Traffic and Bus Journey Routes and Timing Points

4.2.3 Overall the difference in journey times between the 2017 Base and Proposed Development scenario are forecast to be small on most routes. The maximum impact is forecast to be 38 sec increase in journey time on Route 1 southbound during the 07:45-08:45 morning peak. The buses are forecast to experience a minor change in journey times of up to 7 sec in the worst case.

4.2.1 Review of the model results confirms that in some simulation runs an average of 52 and 50 vehicles could not be loaded into the 2017 Base (Scenario 1) network for the AM and PM models respectively. The equivalent in the 2017 Proposed Development model (Scenario 4) was 55 and 43 vehicles respectively. Where they occur the blocked vehicles were queued on the Long Lane south approach. All other vehicles were able to be loaded into the model within the modelled peak hours. This confirms that the network generally operates with similar conditions in both scenarios.

Table 4-1 Base and Proposed Development Scenario Peak Hour Journey Times

Peak	Route No.	Base (sec)	Base + Dev (sec)	Diff (sec)	Diff %
AM Peak (07:15-08:15)	Route 1 SB	243	266	22	9%
	Route 2 NB	251	249	-2	-1%
	Route 3 EB	117	127	10	9%
	Route 4 WB	81	88	7	9%
	Bus Route 1 SB	166	170	4	2%
	Bus Route 2 NB	121	117	-4	-4%
	Bus Route 3 EB	49	52	3	6%
AM Peak (07:45-08:45)	Route 1 SB	266	304	38	14%
	Route 2 NB	272	267	-5	-2%
	Route 3 EB	112	125	14	12%
	Route 4 WB	86	92	6	7%
	Bus Route 1 SB	152	159	7	5%
	Bus Route 2 NB	119	121	1	1%
	Bus Route 3 EB	51	56	4	8%
PM Peak (16:30-17:30)	Route 1 SB	188	191	3	1%
	Route 2 NB	218	220	2	1%
	Route 3 EB	96	102	7	7%
	Route 4 WB	85	84	-2	-2%
	Bus Route 1 SB	114	108	-6	-5%
	Bus Route 2 NB	114	107	-7	-6%
	Bus Route 3 EB	47	53	6	14%

4.2.2 **Table 4-2** shows the Base + Committed Development (Scenario 2) and Base + Committed Development + Proposed Development (Scenario 3) forecast journey times for the peak hours. Overall the differences between the Base and Proposed Development scenarios are forecast to be small on most routes. The maximum impact is forecast to be 43 sec increase in journey time on Route 1 southbound over 07:15-08:15 morning peak hour. The model forecasts minor changes in bus journey times with up to 7 sec increase in the worst case.

4.2.3 Review of the model results confirms that in some simulation runs an average of 179 and 59 vehicles could not be loaded into the Base + Committed Development (Scenario 2) network for the AM and PM models respectively. The equivalent in the Base + Committed Development + Proposed Development (Scenario 3) model was 192 and 66 vehicles. These results confirm that the Proposed Development results in only a small increase (7-13 vehicles) in queues outside the modelled network.

Table 4-2 Base (plus Committed Development) and Proposed Development (plus Committed Development) Scenario Peak Hour Journey Times

Peak	Route No.	Base + Committed (sec)	Base + Committed + Dev (sec)	Diff (sec)	Diff %
AM Peak (07:15-08:15)	Route 1 SB	319	362	43	14%
	Route 2 NB	261	270	10	4%
	Route 3 EB	152	161	9	6%
	Route 4 WB	98	116	17	18%
	Bus Route 1 SB	187	169	-18	-9%
	Bus Route 2 NB	121	118	-4	-3%
	Bus Route 3 EB	59	65	6	10%
AM Peak (07:45-08:45)	Route 1 SB	361	394	32	9%
	Route 2 NB	278	277	-1	0%
	Route 3 EB	155	173	18	12%
	Route 4 WB	114	129	14	12%
	Bus Route 1 SB	170	177	6	4%
	Bus Route 2 NB	113	118	5	4%
	Bus Route 3 EB	65	71	6	9%
PM Peak (16:30-17:30)	Route 1 SB	192	195	3	2%
	Route 2 NB	223	222	-1	0%
	Route 3 EB	95	103	7	8%
	Route 4 WB	86	88	1	2%
	Bus Route 1 SB	107	111	4	4%
	Bus Route 2 NB	111	116	4	4%
	Bus Route 3 EB	47	52	5	10%

4.2.4 **Table 4-3** shows the Base + Committed Development with Office (Scenario 2a) and Base + Committed Development with Office + Proposed Development (Scenario 3a) forecast journey times for the peak hours. Overall the differences between the two scenarios are forecast to be small on all routes. The maximum impact is forecast to be 12 sec increase in journey time on Route 3 eastbound in the PM peak hour. The model forecasts minor changes in bus journey times with up to 6 sec increase in the worst case.

4.2.5 Review of the model results confirms that an average of 253 and 50 vehicles could not be loaded into the Base + Committed Development with Office (Scenario 2a) network for the AM and PM models respectively. The equivalent in the Base + Committed Development with Office + Proposed Development (Scenario 3a) model was 293 and 59 vehicles. These results confirm that the Proposed Development results in only a small increase (9-40 vehicles) in queues outside the modelled network.

Table 4-3 Base (plus Committed Development including Office) and Proposed Development (plus Committed Development including Office) Scenario Peak Hour Journey Times

Peak	Route No.	Base + Committed (w/ office) (sec)	Base + Committed (w/ office) + Dev (sec)	Diff (sec)	Diff %
AM Peak (07:15-08:15)	Route 1 SB	378	386	8	2%
	Route 2 NB	259	258	-1	0%
	Route 3 EB	142	138	-4	-3%
	Route 4 WB	96	96	0	0%
	Bus Route 1 SB	181	180	-1	-1%
	Bus Route 2 NB	124	123	-1	-1%
	Bus Route 3 EB	58	56	-2	-3%
AM Peak (07:45-08:45)	Route 1 SB	428	429	1	0%
	Route 2 NB	275	276	1	0%
	Route 3 EB	135	139	4	3%
	Route 4 WB	103	111	8	8%
	Bus Route 1 SB	163	169	6	4%
	Bus Route 2 NB	118	119	1	1%
	Bus Route 3 EB	60	59	-1	-2%
PM Peak (16:30-17:30)	Route 1 SB	197	202	5	3%
	Route 2 NB	224	217	-7	-3%
	Route 3 EB	107	119	12	11%
	Route 4 WB	92	93	1	1%
	Bus Route 1 SB	113	118	5	4%
	Bus Route 2 NB	115	110	-5	-4%
	Bus Route 3 EB	58	63	5	9%

5 SUMMARY & CONCLUSIONS

5.1.1 This report describes the forecast traffic impacts attributed to the Proposed Development. Traffic impacts were assessed using industry standard traffic modelling packages LinSig and VISSIM. Models were developed according to Transport for London's Traffic Modelling Guidelines (v.3.0). The LinSig Base and Forecast models, and VISSIM Base models were reviewed by TfL and accepted as fit-for-purpose for the assessment of Proposed Development traffic impacts. This report documents results from these models.

5.1.2 Traffic surveys and modelling of the 2017 Base year confirmed that the network is congested during peak times, in particular around the Hillingdon Circus junction. In the AM peak the southbound approach runs very close to capacity, as does the Freezeland Way (left and ahead) and Western Avenue (right). Traffic conditions in the PM peak are better than the AM, although the Freezeland Way (left) and Western Avenue (right) still operate close to capacity.

5.1.3 The Proposed Development is forecast to generate an additional 106 and 100 vehicle trips through Hillingdon Circus junction during the AM and PM peak hours respectively, equating to between one and two additional vehicles passing through the junction every minute. Overall this represents a 3% increase in peak hour traffic.

5.1.4 The proposed highway mitigation scheme provides access to the site via a right turn from Freezeland Way and improves pedestrian crossing facilities around the Hillingdon Circus junction. Taking the proposed highway scheme into account, and with some minor signal timing optimisation, the LinSig and VISSIM modelling forecasts that the incremental impact of the Proposed Development on the Baseline situation (with no Committed Development) is minor with small increases in degree of saturation (DoS) and queues at Hillingdon Circus.

5.1.5 In some cases, these increases in DoS are on approaches which are already close to capacity, however LinSig predicts only modest increases in queue lengths (up to 3 vehicles). The impact of the Proposed Development on journey times is also forecast to be minor. Buses were forecast to be largely unaffected, with up to 7 seconds increase in journey time. General traffic journey times along the A437 Long Lane corridor at peak times were forecast to increase by up to 38 seconds during the morning peak. Journey times in the PM peak are almost unchanged.

5.1.6 The Proposed Development impact was also quantified in the context of the Committed Development expected to come forward. With Committed Development (no Proposed Development) the Hillingdon Circus junction is forecast to operate over capacity in the AM peak on the A437 Long Lane north right turn and Freezeland Way left turn. The addition of Proposed Development was forecast to increase the DoS on the Freezeland Way left turn by 7%, but showed very small impact on other approaches. The model forecast a moderate increase in queue on Freezeland Way of 7 PCUs. The impact of the Proposed Development was small in the PM peak. The inclusion of the office development flows in the Committed Development resulted in higher DoS and queue values, but the impact of the Proposed Development was the same as without the office.

5.1.7 Against the Committed Development base the impact of the Proposed Development on journey times was also forecast to be small. Buses were forecast to be largely unaffected, with up to 6 seconds increase in journey time. General traffic journey times along the A437 Long Lane corridor at peak times were forecast to increase by up to 43 seconds (+14%) during the morning peak.

Journey times in the PM peak are almost unchanged. When the office development is included within the Committed Development flows the journey time impact of the Proposed Development is within that reported above for the without development scenario.

5.1.8 It should be noted that the VISSIM model does not take into account changes to journey routing (trip reassignment) of existing traffic flows, or peak spreading, whereby drivers choose to travel at alternative times to avoid the busiest times on the road network. Once this is taken into account, the queue lengths observed in the future model scenarios could be expected to reduce. It should also be stressed that these are the maximum queue lengths that can be expected during the peak periods, and that for the majority of time the queue lengths would be shorter.

5.1.9 Overall, the scale of impact of the Proposed Development on the local highway network was assessed as being small. The Proposed Development is forecast to result in an increase in traffic through Hillingdon Circus of only 3%. There are isolated impacts on the Freezeland Way left turn in the AM peak which results in an increase in queue length of 3-7 PCUs. Impacts are very small in the PM peak.

5.1.10 In addition to the highway scheme which improves provision for cycling and walking, the only further mitigation assumed was a small adjustment of signal green splits (1 second) at the Hillingdon Circus signals.

Appendix M

SIGNAL OPTIMISATION NOTE

Master Brewer Site – Hillingdon Gateway Technical Note: Signal Timing Optimisation

Job Number	Date	Author	Checked	Authorised
70028642	16/02/18	John Allen	Nick Cottman	Tim Gabbitas

INTRODUCTION

The Hillingdon Gateway Transport Assessment (TA) was submitted to London Borough of Hillingdon (LBH) in August 2017. Traffic modelling was prepared in support of the application, and is documented in the '*Master Brewer Site – Local Model Validation Report*' (LMVR) and '*Hillingdon Gateway – Traffic Modelling Addendum*'. TfL have confirmed that the base year models are fit for purpose. LBH have also now undertaken a technical review of the models and confirmed that the modelling is fit for purpose, notwithstanding the need to provide some additional information (i.e. LMVR) which was provided to Council in February. Following submission and review of the scheme models TfL requested further optimisation of the traffic signal timings at Hillingdon Circus. This note summarises the findings from that further testing in VISSIM.

As reported previously, the Proposed Development is forecast to generate between one and two additional vehicles through Hillingdon Circus per minute. This increase in traffic was forecast to result in general traffic journey times increasing in a 'worst case' situation by up to 43 seconds in the morning peak, with little change in the PM peak. Buses were forecast to be largely unaffected, with up to 7 seconds increase in journey time.

Traffic modelling forecast that all approaches to the Hillingdon Circus junction would operate at or close to capacity with Committed Development and Proposed Development and so there was very limited scope to increase total junction capacity through optimisation of signal timings. Consequently, WSP chose to maintain TfL's prevailing signal timings to preserve the existing control strategy at the site.

However, there is scope to alter the proportion of green time given to each approach at Hillingdon Circus, and therefore re-balance the capacity allocated to each approach to the junction. This note summarises the potential journey time benefits of re-balancing signal timings at the junction.

SIGNAL OPTIMISATION TESTS

Three signal optimisation test scenarios were created to quantify the potential benefits to network journey times. Testing was undertaken for the AM peak, which is representative of the most congested time period. The test scenarios are described below:

- **Test 1: Minor Priority to Long Lane** – This takes two seconds from Stage 3 (i.e. Western Avenue) and applies this to Stage 1 (i.e. the A437 Long Lane North and Southbound). This test is designed to show the benefits of a subtle reallocation of traffic capacity to Long Lane approaches.
- **Test 2: Major Priority to Long Lane** – This test takes six seconds from Stage 3 and applies this to Stage 1. This test is designed to give greater capacity to the north-south movement (and vice versa) along Long Lane, which in turn takes capacity away from Western Avenue, since it currently operates with much lower levels of queuing than other approaches.
- **Test 3: Priority to Long Lane Southbound** – This test reallocates six seconds from Stage 3 and applies two seconds to Stage 1 and the remaining four seconds to Stage 2 (Long Lane North). This test focuses on the reduction in queues for the right turn from Long Lane North, and represents a more balanced strategy.

The staging diagram for Hillingdon Circus is shown in **Figure 1** and the signal timings tested in **Table 1**. The signal timings which are modified from the 'original' timings are highlighted in red.

Figure 1: J26/020 Freezeland Way - Long Lane Staging Diagram (TfL)

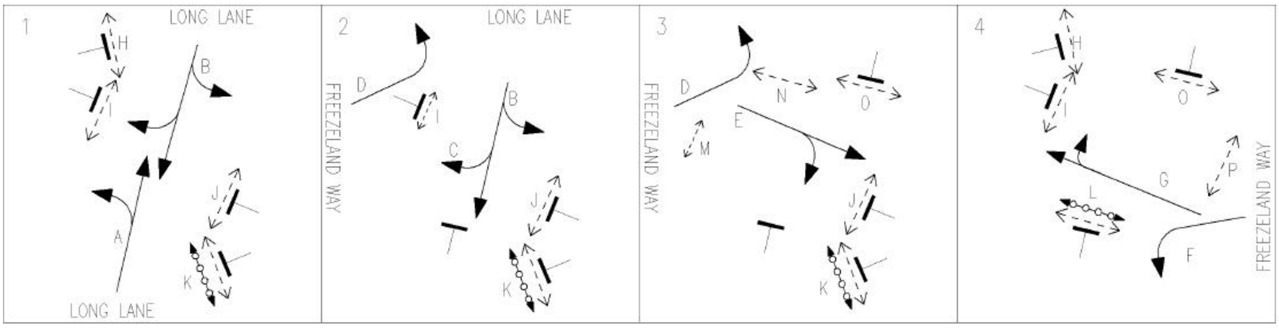


Table 1: Signal Optimisation Test Timings

Signal Test	Stage 1 (s)	Stage 2 (s)	Stage 3 (s)	Stage 4 (s)
Original Timings	46	12	23	23
Test 1	**48**	12	**21**	23
Test 2	**52**	12	**17**	23
Test 3	**48**	**16**	**17**	23

Journey time results for the original timings and each optimised test scenario are reported in **Table 2**.

Table 2: Journey Time Results (AM peaks) for Original and Test Case Signal Timings

Peak	Route No.	Base + Comm + Office + Dev (sec)	Test 1 - Minor Signal Change	Diff	Diff %	Test 2 - Focus on Stage 1	Diff	Diff %	Test 3 - Focus on Northern Arm	Diff	Diff %
AM Peak (07:15-08:15)	Route 1 SB	386	356	-30	-8%	312	-74	-19%	229	-157	-41%
	Route 2 NB	258	238	-20	-8%	217	-41	-16%	254	-4	-2%
	Route 3 EB	138	142	4	3%	159	21	15%	159	21	15%
	Route 4 WB	96	109	13	14%	126	30	31%	139	43	45%
	Bus Rt 1 SB	180	179	-1	-1%	180	0	0%	175	-5	-3%
	Bus Rt 2 NB	123	115	-8	-7%	108	-15	-12%	118	-5	-4%
	Bus Rt 3 EB	56	57	1	2%	60	4	7%	54	-2	-4%
AM Peak (07:45-08:45)	Route 1 SB	429	406	-23	-5%	360	-69	-16%	226	-203	-47%
	Route 2 NB	276	253	-23	-8%	229	-47	-17%	271	-5	-2%
	Route 3 EB	139	148	9	6%	158	19	14%	169	30	22%
	Route 4 WB	111	131	20	18%	160	49	44%	171	60	54%
	Bus Rt 1 SB	169	172	3	2%	165	-4	-2%	152	-17	-10%
	Bus Rt 2 NB	119	113	-6	-5%	107	-12	-10%	117	-2	-2%
	Bus Rt 3 EB	59	60	1	2%	63	4	7%	55	-4	-7%

Journey time results from the tests show an incremental improvement to journey times on A437 Long Lane, compared to the original timings. The improvement in A437 Long Lane journey times is offset to some extent by an increase in journey time on the Freezeland Way (WB) and Western Avenue (EB) approaches. Bus journey times are forecast to improve in all tests.

Key results from each run are summarised below:

- **Test 1** – Results confirm that even a small shift in signal timings (two seconds from Western Avenue approach to Long Lane approaches) would yield potentially significant benefits to traffic on A437 Long Lane (20 to 30 seconds savings). The consequential impact on the Western Avenue approach (EB) was forecast to be small (up to 9 seconds). The Freezeland Way approach (WB) was forecast to sustain an additional 20 seconds delay due to the increased southbound flow on Long Lane restricting the capacity of the Freezeland Way left turn. Bus journey times improved a small amount (up to 8 seconds).

- **Test 2** – This test shifts green time in the same way as Test 1, but to a greater extent. The results are therefore similar in nature but larger in magnitude. Bus journey times were forecast to reduce by up to 15 seconds. A437 Long Lane north-south movements were forecast to save 41 to 74 seconds. Due to removal of time from Western Avenue approach (EB), traffic on this approach is expected to experience additional delay of up to 20 seconds. As a result of the increased southbound flow on A437 Long Lane, Freezeland Way was again forecast to experience delay increases of up to 49 seconds.
- **Test 3** – This test prioritises southbound movements on A437 Long Lane and demonstrates that it is possible to reduce journey times in this direction by over three minutes. Again the Western Avenue and Freezeland Way approaches were forecast to sustain additional delay of up to 30 to 60 seconds respectively. Bus journey times were forecast to improve by up to 17 seconds.

With any reduction in green time for Freezeland Way and Western Avenue stages there will be a consequential increase in queue lengths on these approaches. To maintain safety on the A40 it is critical to avoid any queuing back to the A40 mainline on these arms. Queuing analysis shows that the increase in queueing will be well within the available storage on Freezeland Way (approx. 900m) and Western Avenue (approx. 800m).

Conversely, the queues on the A437 Long Lane would be shorter under the test signal timings reported above. It should also be noted that the Hillingdon Circus junction does not operate in isolation and A437 Long Lane traffic is impacted by blocking back through the junction due to capacity pinch-points to the south.

CONCLUSION

The results reported above demonstrate that there is little scope to increase the overall capacity of the Hillingdon Circus junction. However by optimising (i.e. re-balancing) traffic signal timings at Hillingdon Circus, results show that there is scope to prioritise certain traffic movements to meet the traffic management objectives of TfL and LB Hillingdon. TfL are responsible for the day-to-day management of London's traffic signals, and so TfL could choose to implement altered signal timings as appropriate following opening of the Proposed Development.

The most notable potential gain is on the A437 Long Lane, where re-allocating green time from the Western Avenue stage to A437 Long Lane stage, could yield significant journey time savings to general traffic and buses. This type of optimisation may be appropriate, for example, if a high frequency north-south bus route was brought into service along the corridor. This benefit to A437 Long Lane traffic would need to be balanced against the localised impact to other routes.

Results are presented for the busiest period (AM peak) for the worst case (high traffic demand) scenario (Base + Committed Development with Office + Proposed Development), so journey times reported are at the upper end of what would be expected in reality. Similarly, the VISSIM model does not take into account changes to journey routing (trip reassignment) of existing traffic flows, or peak spreading, whereby drivers choose to travel at alternative times to avoid the busiest times on the road network. Once this is taken into account, the journey times and queue lengths forecast by the modelled scenarios could be expected to reduce.

Appendix N

STATION CAPACITY ASSESSMENT

Hillingdon Gardens, Freezeland Way, Hillingdon

STATION CAPACITY ASSESSMENT NOTE

NOTE PURPOSE

This document provides a summary of the revised Station High Level Capacity Review at Hillingdon London Underground station, to accompany the Transport Assessment submitted as part of the proposed development at the Former Master Brewer site in Hillingdon, northwest London.

Following the submission of the Transport Assessment, TfL have asked that WSP update the Station Capacity Assessment using more recently available datasets. The purpose of this note is to provide a revised assessment of the footbridge width and gate line requirements according to the LU Station Planning guidance, considering the TfL RODS / NUMBAT data from 2018, cumulative schemes in the local area, and additional demand generated by the proposed development. This note will therefore outline and seek to agree the results of the Station Capacity Assessment.

STATION CAPACITY ASSESSMENT

The assessment was based in the exit and entry peak 15 minutes according to RODS / NUMBAT data from 2018, and the results are contained in **Appendix A**. The additional Underground trips related to the proposed development and nearby cumulative schemes have also been extracted from the Transport Assessment[1] and Trip Generation Note[2] and applied to the assessment. Using the peak hour factors from S1371 A6 LU Station Planning Guidance, the station peak 15 minute, peak 5 minute and peak minute demands at the footbridge and car park are described in **Table 1**.

Table 1: Boarders and alighters by line

Peak		Peak 15 min at footbridge	Peak 15 min at car park	Peak 5 min at footbridge	Peak 5 min at car park	Avg peak min at footbridge	Avg peak min at car park
AM Peak	Entry	183	34	73	14	12	2
	Exit	42	8	17	3	3	1
PM Peak	Entry	46	22	18	9	3	1
	Exit	91	17	36	7	6	1

Footbridge width requirements

Considering the peak flows forecast, **Table 2** shows that the footbridge current provision surpasses the required clear width and allows comfortable passenger circulation during peak periods.

Table 2: Peak demands and footbridge width requirements and provisions

Peak		Peak 15 min at Footbridge	Peak 5 min at Footbridge	Peak demand (people/min)	Min. Width required (m)	Width provided
AM Peak	Entry	183	73	18 people/min	1.9m	4.5m
	Exit	42	17			
PM Peak	Entry	46	18	11 people/min	1.9m	4.5m
	Exit	91	36			

[1] 191003_Hillingdon Gardens_Transport Assessment_Final.docx
[2] 190718_Hillingdon Gardens_Trip Gen Note.docx

Gate line requirements

Table 3 shows the forecast peak 5 minute entry and exit flow at the station. The number of boarders and alighters is based on the frequency of trains.

Table 3: Entry and exit flows

	AM peak	PM peak	Train frequency (trains per hour)	
5 minute entry flow	87	27	AM Peak	PM Peak
EB Metropolitan line exits	18	40	10	9
WB Metropolitan line exits	0	2	9	10
EB Piccadilly line exits	9*	0	8	8
WB Piccadilly line exits	7	9	7	8

**As original demand data is absent from RODS, it is assumed to be the inverse of westbound flow (higher values than figures interpolated using overall entry / exit data)*

Table 4 shows that 4 gates (including at least 1 wide aisle gate) will be required to cater for the peak periods with the additional flows related to the proposed development as well as nearby cumulative schemes.

Table 4: Gate line requirements and provisions

	AM peak	PM peak
5 minute entry flow	87	27
Peak EB alighters	27	40
Peak WB alighters	7	11
Gate requirement	**3 (2+1 WAG)**	**4 (3+1 WAG)**
Gate provision	**4 (3+1 WAG)**	**4 (3+1 WAG)**

SUMMARY

This technical note outlines the results of the revised Station Capacity Assessment at Hillingdon station, to determine the impact of the London Underground trip generation associated with the proposed development at the Former Master Brewer site in Hillingdon.

The revised assessment has utilised RODS / NUMBAT data from 2018, and shows that the current provisions of the station for the footbridge and gate lines are sufficient to cater the current passenger demands and additional demands related to the proposed development and nearby cumulative schemes. Future demand increases to the network have not been considered at this point.

Appendix A – Station Capacity Assessment

Baseline + Cumulative Schemes + Development

Gateline Requirement	4
Bridge Width Requirement (m)	1.9
Bridge Level of Service	B

Development Demand

Source: Trip Generation Note, July 2019

	AM Peak Hour		PM Peak Hour		
	In	Out	In	Out	*Relative to Development*
Underground Trips	6	45	13	11	

RODS Data

Entry

Time period	Bus/Coach	Bicycle	Motorcycle	**Car/Van Parked**	**Car/Van driven away**	**Walked**	**Taxi/ Minicab**	**RiverBus/Ferry**	**Other**	**Not Stated**	**Total all modes**
Early	40	0	0	111	36	164	0	0	0	0	351
AM Peak	241	0	0	440	154	582	1	0	0	26	1444
Midday	117	0	0	154	33	445	0	0	0	2	751
PM Peak	167	0	0	42	91	113	0	0	0	75	488
Evening	23	0	0	18	26	65	0	0	0	0	132
Late	14	0	0	0	9	1	0	0	0	3	27
Total	602	0	0	765	349	1370	1	0	0	106	3193

Exit

Time period	Bus/Coach	Bicycle	Motorcycle	**Car/Van Parked**	**Car/Van driven away**	**Walked**	**Taxi/ Minicab**	**RiverBus/Ferry**	**Other**	**Not Stated**	**Total all modes**
Early	75	0	0	0	1	1	0	0	0	0	77
AM Peak	62	0	0	0	17	136	0	0	0	169	384
Midday	77	0	0	43	61	311	0	0	0	9	501
PM Peak	164	0	0	277	41	452	25	0	0	42	1001
Evening	113	69	0	51	15	185	0	0	0	44	477
Late	0	0	0	45	0	71	0	0	0	114	230
Total	491	69	0	416	135	1156	25	0	0	378	2670

Boarders by Line

Line	Direction	AM Peak	PM Peak
Metropolitan	N	4	8
	S	180	37
Piccadilly	E	14	8
	W	2	0

Alighters by Line

		Base		Base + Cumulative		With Dev.	
Line	Direction	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
Metropolitan	N	43	87	43	87	45	91
	S	0	4	0	4	0	4
Piccadilly	E	17	0	17	0	17	0
	W	12	17	12	17	12	17

Peak Hour Factors

Source: S1371 A6 LU Station Planning Guidance
Zone 6

	AM Peak	PM Peak
3h -> 1h	0.48	0.39
1h -> 15min	0.27	0.26
15min -> 5min	0.4	0.4

Station Demand Breakdown

		Peak 3 Hours		Peak Hour		Peak 15 Minutes		Peak 5 Minutes		Average Peak Minue	
		Bridge	Parking Lot	Bridge	Parking Lot	Bridge	Parking Lot	Bridge	Parking Lot	Bridge	Parking Lot
AM Peak	Entry	*1203*	*241*	*622*	*116*	183	34	73	14	12	2
	Exit	*322*	*62*	*161*	*30*	42	8	17	3	3	1
PM Peak	Entry	*321*	*167*	*136*	*65*	46	22	18	9	3	1
	Exit	*837*	*164*	*339*	*64*	91	17	36	7	6	1

Gateline Requirements

			TPH		Headway (minutes)	
	AM	PM	AM	PM	AM	PM
5-minute Entry Flow	87	27				
NB Metropolitan Line Exits	18	40	10	9	6.0	6.7
SB Metropolitan Line Exits	0	2	9	10	6.7	6.0
EB Piccadilly Line Exits	9	0	8	8	7.5	7.5
WB Piccadilly Line Exits	7	9	7	8	8.6	7.5
Peak WB Alighters	7	10				
Peak EB Alighters	26	40				
Gate Requirement:	3	4				

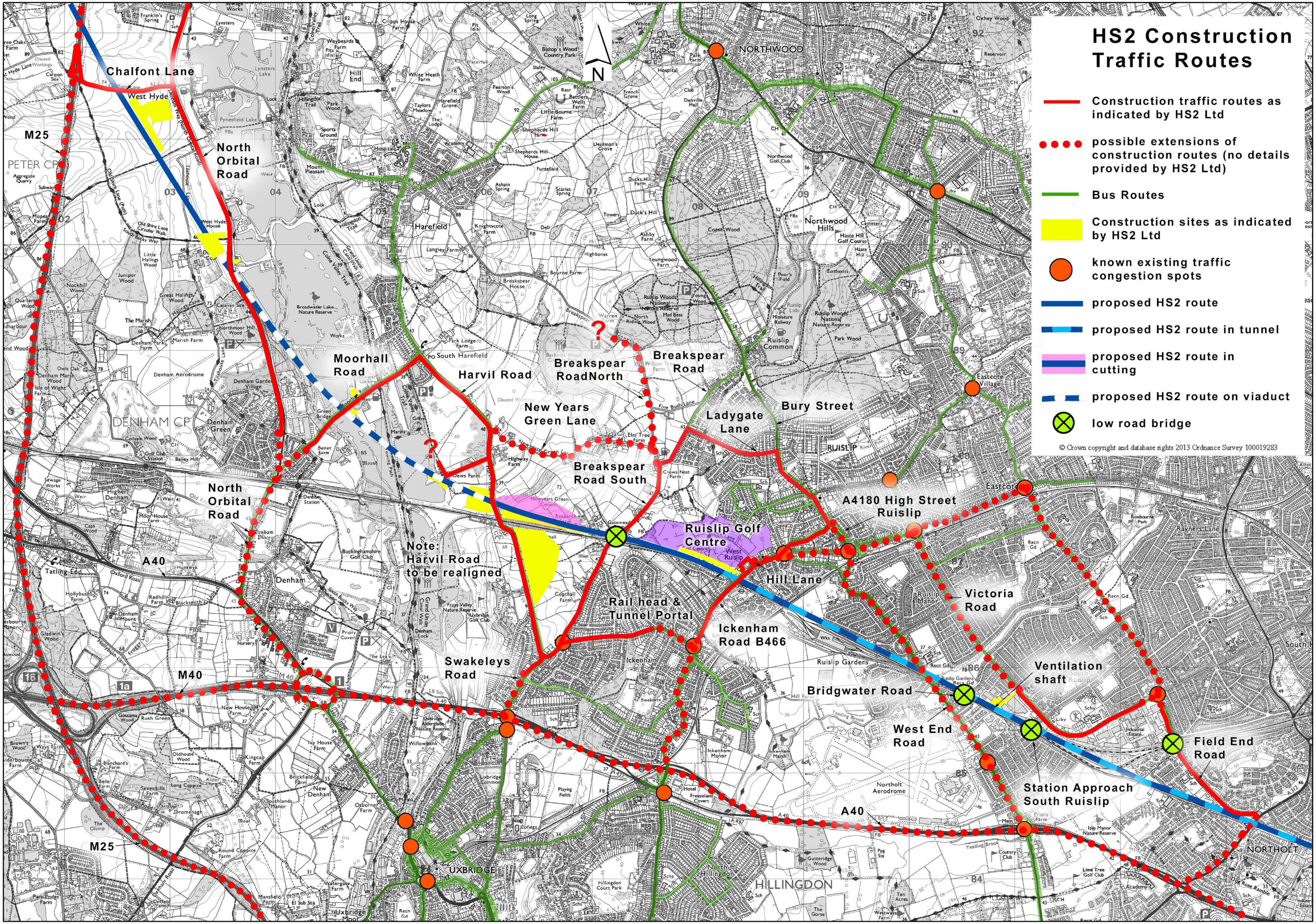
Bridge Width Requirements

Existing Width:	4.5	m	
AM Peak Demand	18	pax/mins	1.049612022
PM Peak Demand	11	pax/mins	0.873586701
Width Requirement	1.9	m	
Level of Service	B		

Appendix O

HS2 CONSTRUCTION ROUTES

Public



HS2 Construction Traffic Routes
Construction traffic routes as indicated by HS2 Ltd
possible extensions of construction routes (no details provided by HS2 Ltd)
Bus Routes
Construction sites as indicated by HS2 Ltd
known existing traffic congestion spots
proposed HS2 route
proposed HS2 route in tunnel
proposed HS2 route in cutting
proposed HS2 route on viaduct
low road bridge
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Chalfont Lane
M25
North Orbital Road
Moorhall Road
Harvil Road
Breakspear RoadNorth
Breakspear Road
New Years Green Lane
Ladygate Lane
Bury Street
Breakspear Road South
North Orbital Road
A4180 High Street Ruislip
Ruislip Golf Centre
A40
Note: Harvil Road to be realigned
Hill Lane
Victoria Road
Rail head & Tunnel Portal
Ickenham Road B466
Swakeleys Road
M40
Ventilation shaft
Bridgwater Road
West End Road
Field End Road
Station Approach South Ruislip
A40
M25
NORTHWOOD
UXBRIDGE
HILLINGDON
NORTHOLT
DENHAM CP
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