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Land at Oxhey Lane, Carpenders Park: Summary of Sustainable Transport Improvements

Ref: PH/RW/ITL200107-010 TN
Date: 13 January 2026

SECTION 1 Introduction

1.1 Burlington Property Group proposes to develop Land east of Oxhey Lane, Carpenders Park to provide a residential development of 256 homes, housing with care and a children's home. A planning application was submitted to Three Rivers District Council (TRDC) for the proposal in July 2025 *(TRDC application reference: 25/1020/OUT)*.

1.2 The Applicant has been involved with detailed discussions with TRDC and Hertfordshire County Council (HCC), involving several detailed responses to queries and meetings to discuss the proposals. A summary of the engagement following the initial submission of the application is provided below:

- HCC provided a response to the application dated 6 August 2025. i-Transport LLP subsequently provided a technical note (*report reference: ITL200107-006 TN*) addressing the matters raised which was submitted on 9 September 2025 **(Appendix A).**
- HCC provided a further response (to the technical note) dated 1 October 2025. Subsequently, a second technical note was produced by i-Transport LLP and a was held meeting between the Applicant, HCC and TRDC to discuss sustainable transport improvements on 20 October 2025, and HCC provided a response to this on 4 November 2025 **(Appendix B).**
- A further technical note was submitted to HCC by i-Transport LLP on 7 November 2025 setting out a package of proposed sustainable transport improvements, covering off-site active travel improvements and public transport improvements, to aid further discussion with HCC including its public transport officers **(Appendix C).**

- A meeting was held between TRDC, HCC highways officers and public transport officers, and the Applicant team on 10 December 2025 to discuss the package of improvements but more specifically the public transport contributions. HCC public transport officers subsequently provided further information on the requested contribution towards bus services **(Appendix C).**

1.3 This technical note further clarifies the package of sustainable transport improvements that are proposed as part of the planning application, including elements that are proposed to be delivered by the Applicant (secured by Condition) and proposed contributions (secured through a s106 agreement), including:

- Off-site walking and cycling improvements
- Bus service contributions
- Bus stop location and contributions
- Beryl bike contributions

1.3.1 This note also includes a response to HCCs Road Safety Review.

SECTION 2 Sustainable Transport Improvements

2.1 Off-site walking and cycling improvements

2.1.1 The Applicant is willing to deliver a package of improvements to the walking and cycling network, shown at **Figure 1** and summarised below:

- Resurfacing and footway widening on Oxhey Lane south of the existing care home.
- Installation of a controlled signalised crossing (to be delivered as part of the site access works) at Oxhey Lane / Carpenders Avenue. This may in turn support the provision of a future secondary school that may be allocated to the north of the site.
- Resurfacing of footway on south side of Carpenders Avenue up to the junction with Foxleys.
- Installation of tactile paving at:
  - Carpenders Avenue / Foxleys junction
  - Foxleys / The Mead junction
  - Delta Gain / Gibbs Couch junction
  - Gibbs Couch near Carpenders Park Overground station

2.1.2 These improvements are proposed to be secured by an appropriately worded condition.

2.2 Bus contributions

2.2.1 HCC public transport officers provided a detailed breakdown of several options of bus service operation and associated developer contribution.

2.2.2 It was agreed that a complementary 328 service (328a) to loop along Carpenders Avenue and Oxhey Lane would be the preferred option, and a developer contribution to a single bus would be appropriate. HCC subsequently suggested the following annual developer contribution towards the service:

- Year 1 - £153,389.67
- Year 2 - £153,389.67
- Year 3 - £153,389.67
- Year 4 - £76,694.84
- Year 5 - £76,694.84

2.2.3 This results in a total of £613,558.69 over a five year period.

2.2.4 The Applicant has agreed to the bus service contribution suggested by HCC public transport officers, secured by way of S106 contribution.

2.3 Bus stop location and contribution

Bus stop location

2.3.1 The Applicant was requested to identify a location for a new bus stop on Oxhey Lane to be served by the new bus service.

2.3.2 The optimal zone for a potential bus stop would be circa 70m north of the care home access and in the vicinity of the existing splitter island. The proposed zone is shown at **Images 2.1** and **2.2**.

2.3.3 This location is optimal for the following reasons:

- It is sufficient distance from the proposed site access junction with Carpenders Avenue to the north and the care home site access to the south.
- It is located near to a proposed pedestrian access to the site (just north of the care home).
- Most houses within the development will be within 400m catchment of this location.

2.3.4 This bus stop location assumes the 328a service will route southbound on Oxhey Lane. Should HCC public transport officers prefer this to route in the northbound direction, then the bus stop could be placed directly adjacent on the opposite side of the carriageway.

Images 2.1 and 2.2: Proposed bus stop zone

Source: Google Maps

Bus stop contribution

2.3.5 HCC have confirmed the following costs to secure a new bus stop:

- Kassel kerbing £8,000
- Shelter £15,000
- RTI Screen £15,000
- **Total** **£38,000**

2.3.6 The Applicant has agreed this contribution to secure a new bus stop on Oxhey Lane, secured by way of S106 contribution.

2.4 Beryl Bike contribution

2.4.1 TRDC are promoting the provision of a Beryl bike parklet at Carpenders Park / South Oxhey station. TRDC have requested a sum (amount to be confirmed) towards a parklet at the station to be secured by S106 contribution, and a Beryl Bike parklet within the site to be secured by Condition. The Applicant is awaiting further information regarding the Beryl Bike contribution and will continue to engage with TRDC regarding this contribution.

SECTION 3 Road Safety Review

3.1.1 A Road Safety Review (RSR) of the Stage One Road Safety Audit of the site access arrangements was undertaken by HCC Road Safety team. The Road Safety Review is attached at **Appendix D**.

3.1.2 In summary, the review acknowledges that the Designers Response to all Problems identified are acceptable.

3.1.3 RSR HCC Problem Reference HCC 2 also states that '***Vehicle tracking drawing provided as part Road Safety Audit Stage 1 (ITL200107-GA-006 Rev B) indicates turning conflicts at the site access, where inbound and outbound turning manoeuvres overlap. Limited space available impact manoeuvrability and increases the likelihood of side swipe collisions'***

3.1.4 This Problem is noted. However, the vehicle tracking is of simultaneous refuse vehicles which is an unlikely event. However, the kerbline within the site can be amended at detailed design stage to accommodate swept path.

SECTION 4 Summary of Transport Measures

4.1.1 The Applicant is willing to help support and deliver the following package of improvements:

1. Improvement works to walking and cycle infrastructure (as shown indicatively on **Figure 1** and referenced in Section 2.1), secured by Condition.
2. A total contribution of £613,558.69 towards bus service improvements over a five year period.
3. A total contribution of £38,000.00 towards a new bus stop on Oxhey Lane.
4. A contribution (amount to be confirmed) towards Beryl Bike parklet in Carpenders Park / South Oxhey.
5. A dedicated Beryl Bike parklet within the development, secured by Condition.

FIGURES

i-Transport | Land at Carpenders Park

walking and Cycling Appraisal Improvements | ITL200107

Key

- Site Boundary
- Land to the Rear of Woodlands Cottage - Site Boundary
- Bus Stop
- Carpenders Park Overground Station
- Tactile Paving Installation
- Controlled Crossing Point
- Footway Widening
- Footway Resurfacing

Land to the rear of Woodlands Cottage - Site Boundary

Installing a Controlled Crossing

Resurfacing Footway

Installing Tactile Paving

Installing Tactile Paving

Installing Tactile Paving

Installing Tactile Paving

Resurfacing Footway

Footway Widening

0 0.7 1.4 km

APPENDIX A. INITIAL POST-APPLICATION TECHNICAL RESPONSE & CORRESPONDENCE

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Land at Carpenders Park: Response to HCC Comments

Ref: PH/RW/JL/ITL200107-006 TN
Date: 9 September 2025

SECTION 1 Introduction

1.1 Burlington Property Group proposes to develop Land east of Oxhey Lane, Carpenders Park to provide a residential development of 256 homes, housing with care and a children's home. A planning application was submitted to Three Rivers District Council (TRDC) for the proposal in July 2025 *(TRDC application reference: 25/1020/OUT)*.

1.2 A Transport Assessment (TA) (*report reference: ITL200107-002B R)* and Framework Travel Plan (FTP) *(report reference: ITL200107-003B R)* were prepared by i-Transport to accompany the application and to assess the proposals in transport/highways terms. The description of the development is as follows:

> ***"Outline planning application for up to 256 homes (C3 use class) (including affordable and self/custom build housing), housing with care (C2 use class), a children's home (for looked after children) (C2 use class) together with associated access (including off-site highway works), parking, open space and landscaping (appearance, layout, landscaping and scale as reserved matters."***

1.3 This note provides a response to matters raised by Hertfordshire County Council (HCC) as the local highway authority dated 6 August 2025. The full response is included at **Appendix A**. A summary of the concerns raised by HCC is provided below:

i No audit has been provided on the quality of cycling and walking routes in the vicinity of the proposed development.

ii The lack of bus services in the vicinity of the site has not been addressed.

iii Trip generation, distribution and assignments provided in the TA are not acceptable.

iv No safety audit (or Designer's Response) has been provided in respect to the two proposed new accesses.

v No assessment has been made on the impact of the development on street trees.

vi The TA does not provide a gradient profile for the proposed new road onto the A4008.

vii Visibility splays from the junction are not provided in the TA.

viii The proposed access onto the A4008 is considered contrary to policy 5(f) of HCC's Local Transport Plan, 2018.

1.4 This note responds to these issues raised, providing additional information and further clarifications where necessary. The remainder of this note is structured as follows:

- Section 2 – deals with the matters on sustainability, including a walking and cycling audit and consideration of bus service improvements;
- Section 3 – provides further information on the site access design matters;
- Section 4 – considers the trip generation, distribution and assignment. With updated modelling.

SECTION 2 Sustainability

2.1 Walking and Cycling Audit

2.1.1 The HCC response states:

> ***'The applicant however appears not to have carried out a formal audit of the quality of local routes for cycling and walking in the vicinity of the site. This is a standard requirement for larger developments of this size. There are various methodologies for such an audit. HCC would not seek to be prescriptive in this respect.'***

2.1.2 Section 3.3 & 5.5 of the TA provide an overview of the walking and cycling routes between the site and local facilities and refer to the audit of Carpenders Avenue included in the Three Rivers LCWIP. However, to supplement this a more detailed walking and cycling audit is provided at **Appendix B**. It assesses three key routes:

- Route 1 – To St. Meryl School & Little hearts pre-school
- Route 2 – To bus stops on By The Wood
- Route 3 – To Carpenders Park station and South Oxhey local centre

2.1.3 A qualitative appraisal of each of the routes has been informed by Site visits undertaken in November 2024 and a further desktop appraisal in August 2025.

2.1.4 Each route has been assessed against the criteria which have been developed with reference to whether routes are safe, direct, convenient and accessible for people of all abilities (paragraph 82 of the National Design Guide) and / or coherent, direct, safe, comfortable and attractive (core design principles in LTN 1/20). The criteria are detailed in the walking and cycling audit note, and include accessibility, safety and comfort, directness, attractiveness, cohesion, and environment.

2.1.5 The full details of the audit are provided at **Appendix B**. Potential improvements that could be provided to uplift the active travel infrastructure on key routes across the local network include:

- Installation of tactile paving at uncontrolled crossing points along Carpenders Avenue, Foxleys, The Mead and Gibbs Couch.
- Footway widening into existing grass verges on Oxhey Lane to ensure that the footways are wide enough to walk two side-by-side.
- Resurface existing footways on Oxhey Lane and Carpenders Avenue to improve accessibility and comfort.
- The implementation of a controlled crossing point at the Carpenders Avenue and Oxhey Lane junction would improve directness, safety and comfort for all routes.

- Where feasible within the existing highway the shared footway/cycleway on Oxhey Lane could be widened to allow for two-way movement.

2.1.6 The Applicant is willing to support necessary active travel improvements through a Section 106 contribution of an appropriate scale for the development in accordance with paragraph 58 of the NPPF. The Applicant would welcome the opportunity to discuss improvements with HCC.

2.2 Bus Strategy

2.2.1 The HCC response states the following with regard to buses:

> ***'In respect to public transport, the TA notes that Carpenders Park railway station is about 1km from the site. It also notes that "the nearest bus stop is circa 700m." HCC's P&MPDG states an expectation all occupied parts of development should be within 400m walking distance of a bus stop or transport hub by public walking route". The TA does not address this shortfall in bus accessibility.'***

2.2.2 It goes onto suggest the following:

> ***'To assist the applicant in their consideration of the bus stop accessibility HCC's bus service team has noted a possible way of addressing bus service provision related to the proposed development. This might be useful for the applicant to consider. They have suggested a service to complement Service 328 from South Oxhey to Watford, extending it to the new site. The new service could operate from the site via A4008 and B4542 down to Prestwick Road, then via a variation of the current 328 into Watford. There could be an option of extending this up to Watford Junction. This is offered as one possible solution for the applicant to consider. Alternative proposals are welcomed and will be considered by our public transport team.'***

2.2.3 It is acknowledged that there are opportunities to uplift the level of bus accessibility in the local area, and that a service to complement the existing number 328 service may be beneficial for future residents of the site.

2.2.4 The Applicant would welcome the opportunity to explore potential enhancements through further discussions with HCC's public transport team.

SECTION 3 Site Access Design

3.1 Access onto A4008

3.1.1 The HCC response states:

> ***'A vehicular access is proposed directly onto the A4008. As noted above Policy 5(f) of HCC's Local Transport Plan 2018 states that HCC as HA will "Only consider new accesses onto primary and main distributor roads where special circumstances can be demonstrated in favour of the proposals". In this respect the proposal was considered by HCC's Strategic Transport Infrastructure Board (STIB) on 5 March 2025. The view of STIB was that on the basis that this site does not have Local Plan designation it should not be deemed to have special circumstances at the current time.***
>
> ***The TA states that "this policy must be taken in the context of the NPPF, whereby developments should be assessed against the four key tests as noted above." Paragraph 2.4.1 of the TA states that "The NPPF identifies four key transport tests which can be summarised as follows:" This includes "Will the site layout comply with design guidance?". In this respect, Hertfordshire's Place and Movement, Planning & Design Guidance, 2024, clearly references policy 5(f).***
>
> ***The TA does not set out any special circumstances. An objection is therefore raised as the applicant has failed to demonstrate special circumstances; the application for an access onto the A4008 is therefore considered contrary to policy 5(f) of HCC's Local Transport Plan, 2018.'***

3.1.2 HCC position is noted. The TA notes that the A4008 in this location could fall within three of HCC's road categories which do not require special circumstances and thus policy 5(f) would not apply.

3.1.3 There is no guidance on what constitutes special circumstances. However, it is noted that a Local Plan designation appears to constitute special circumstances. Clarification was sought as part of the pre-application process with HCC who stated: ***In the context of the current proposal, we are of the view that "special circumstances" could be applied if the Local Planning Authority (LPA) considered that the site was deemed acceptable for residential development as part of their emerging Local Plan, as Oxhey Lane would be the only practicable means of access.***[1] Therefore, if development is acceptable in this location whether through a LP designation or a planning application that would constitute special circumstances.

3.2 Road Safety Audit

3.2.1 The HCC response states:

[1] Email dated 31 March 2025

'No road safety audit (or Designer's Response) has been provided. This is contrary to advice provided at pre-application stage and contrary to HCC's P&MPDG. This is a necessary requirement. For this site, the TA also notes departures from standards in respect to intervisibility, which raises specific safety concerns.'

3.2.2 The access designs have been subject to a Stage One Road Safety Audit, which was completed prior to the submission of the application and mistakenly omitted from the TA. The RSA covered both the main site access and the emergency access. The road safety audit and Designers' Response to the audit is attached at **Appendix C**, The Designers' Response includes an updated access design drawing (ITL200107-GA-002 Rev D).

3.2.3 In summary, the audit identified a number of problems which have been addressed through changes to the design or can be dealt with at the detailed design stage.

3.3 Visibility Splays & Gradient Profile

3.3.1 The HCC response states the following:

'Visibility splays from the proposed new junction are also not provided in the TA.'

3.3.2 Visibility splays at the proposed new signal junction are shown on drawing no. ITL200107-GA-002 Rev C included in the TA. The only exception being on the site access arm as the detailed alignment beyond the first 20m will be determined as part of future reserved matters application. The access road will be a P2/M1 Predominantly Residential Street in accordance with the HCC guidance. Accordingly, visibility along the access and to the primary signal head would be 33m. For clarity a revised drawing ITL200107-GA-002 Rev E is attached noting the requirement for requisite visibility on the site access arm.

3.3.3 The HCC response also states the following on gradient profile:

'The gradient profile of the proposed new road onto the A4008 has not been provided.'

3.3.4 The detailed alignment of the access road is not determined at this stage as the application is in outline. However, the initial 15m of the access road has been designed with a 4% gradient in line with Design Manual for Roads and Bridges (DMRB). The remainder of the access could be designed at a gradient of 6% in accordance with DMRB or 5% in accordance with HCC design guidance. There is ample space within the site to achieve a suitable design at either of these gradients. It can be seen from the illustrative masterplan (extract below) that a considerable landscaped area is shown around the access road to allow for earthworks.

3.4 Impact on Street Trees

3.4.1 The HCC response states:

> ***'The pre-application comments also drew especial attention to the need to consider whether any street trees would be affected by the applicant's proposal. This appears not to have been addressed in the TA.'***

3.4.2 HCC identified a mature oak tree to the north of the proposed site access location. This is identified as T1 in the Tree Protection Plan provided by ACD Environmental Ltd along with the Root Protection Area (RPA) of the tree. The plan was submitted with the application along with an Arboricultural Impact Assessment. ACD have reviewed the site access against the access design and identified the footway would lead to 2.22% incursion into the RPA. This is a small incursion which could be mitigated through appropriate construction methods.

SECTION 4 Trip Generation, Distribution and Assignment

4.1 Trip Generation

4.1.1 The HCC response states the following on trip generation:

> ***'The TA does not use the national standard trip data-base, TRICS, to provide a predicted number of trips by car.***
>
> ***It is not accepted that the site's location c.1km from a London Overground station "but not in London" makes this a unique site. Neither is it accepted that there are no TRICS sites with similar characteristics. It is noted that the railway line in question became a London Overground station in 2007 and prior to that offered a service to the capital like many other railway lines radiating out from London, which is still its function. The TA does not state why the change of this line from a "Silverlink" service" to a "London Overground" service makes the applicant's site "unique" or excludes an exercise in identifying sites with similar characteristics.'***

4.1.2 It goes on to state:

> ***'For noting, the trip generation set out in the TA pursues a route whereby total trips are derived from TRICS sites and then applying a TEMPro for modal split and trip purpose data. The view of HCC as highway authority does not accept a departure from the standard process of establishing vehicular trips directly from TRICS on the basis of proximity of a London Overground station. Further, the use of 2011 Census Journey is still considered to offer the best means of considering Journey to Work data, once account is taken of developments since 2011 and planned developments. The basis for dependence on what the TA terms "bespoke" multi-modal trip rates is not accepted.***
>
> ***'The applicant should provide trip generation figures based on a methodology agreed with HCC as highway authority. The applicant might wish to validate this against their TEMPro and National Travel Survey approach.'***

4.1.3 Multi-modal trip rates were obtained using the standard TRICS methodology and were presented within the Transport Assessment (Appendix H). These rates displayed a low public transport modal share (2%-4%) and are therefore not a reasonable representation for a settlement of Carpenders Park's proximity to London with a London Overground Station, which provides frequent, direct and fast services to central London. Thus, while these characteristics are not unique to Carpenders Park, the TRICS sites do not provide a reasonable representation of the mode share characteristics for this location.

4.1.4 Therefore, the methodology undertaken using TEMPro was used within the TA. It should be noted, however, that the total person trip rate taken from the TRICS analysis (included as Appendix H of the submitted TA) was used as the basis for the calculations.

4.1.5 Since completion of the TA an updated version of TRICS has been released. The TRICS assessment included in the TA has therefore been updated (using the same criteria) with the updated TRICS outputs provided at **Appendix D**. The trip rates are slightly different due to the addition of more surveys within the database and are summarised in **Table 4.1**.

Table 4.1: TRICS Multi-Modal Trip Generation – No Vision

	Morning Peak (0800-0900)				Evening Peak (1700-1800)			
	Arr.	Dep.	2-way	Mode share	Arr.	Dep.	2-way	Mode share
Walking								
Trip Rate	0.037	0.098	0.135	13.04%	0.044	0.035	0.079	9.31%
Trip Gen.	10	25	35		11	9	20	
Cycling								
Trip Rate	0.005	0.019	0.024	2.32%	0.014	0.008	0.022	2.59%
Trip Gen.	1	5	6		4	2	6	
Car Driver								
Trip Rate	0.153	0.377	0.530	51.21%	0.332	0.154	0.486	57.24%
Trip Gen.	39	97	136		85	40	125	
Car Passenger								
Trip Rate	0.034	0.271	0.305	29.47%	0.181	0.065	0.246	28.98%
Trip Gen.	9	70	79		47	17	64	
Public Transport								
Trip Rate	0.005	0.036	0.041	3.96%	0.013	0.003	0.016	1.88%
Trip Gen.	1	9	10		3	1	4	
Total	**60**	**206**	**266**	**100%**	**150**	**69**	**219**	**100%**

Source: TRICS

4.1.6 As shown in Table 4.1, the public transport mode share is only 3.96% in the morning peak hour and less than 2% for the evening peak hour. This would result in just four trips by public transport during the evening peak hour out of a possible 219. As noted, this is not representative of expected level of public transport trips, given the proximity of the site to regular London Overground services to key employment hubs.

4.1.7 Nevertheless, the multi-modal TRICS data in Table 4.1 has been used to assess the level of vehicle trips arising from the proposed development.

4.1.8 **Table 4.2** shows the trip generation (without vision) presented in the submitted TA. **Table 4.3** goes on to show the net difference between the two methodologies (i.e. the difference between **Table 4.1** and **4.2**).

Table 4.2: Multi-Modal Residential Trip Generation – No Vision (Table 6.5 in TA)

Mode	AM Peak (8:00 – 9:00)				PM Peak (17:00 – 18:00)			
	%	Arr.	Dep.	2-Way	%	Arr.	Dep.	2-Way
Walk	18.9%	13	36	49	15.5%	22	11	33
Cycle	1.3%	1	2	3	1.3%	2	1	3
Car Driver	40.4%	27	78	105	47.5%	68	34	102
Car Passenger	20.2%	14	39	53	19.9%	28	14	42
Public Transport	19.2%	13	37	50	15.8%	23	12	35
Total	**100**	**68**	**192**	**260**	**100**	**143**	**72**	**215**

Source: Consultation Calculations

Table 4.3: Difference between Methodologies

Mode	AM Peak (8:00 – 9:00)				PM Peak (17:00 – 18:00)			
	%	Arr.	Dep.	2-Way	%	Arr.	Dep.	2-Way
Walk	-5.86%	-3	-11	-14	-6.19%	-11	-2	-13
Cycle	+1.02%	0	+3	+3	+1.29%	+2	+1	+3
Car Driver	+10.81%	+12	+19	+31	+9.74%	+17	+6	+23
Car Passenger	+9.27%	-5	+31	+26	+9.08%	+19	+3	+22
Public Transport	-15.24%	-12	-28	-40	-13.92%	-20	-11	-31
Total	**0%**	**-9**	**+9**	**0**	**0%**	**+5**	**-6**	**-1**

Source: Consultation Calculations

4.1.9 As is shown above, there is an increased mode share for car passenger trips (10%) and a decrease in public transport mode share by around 14%.

4.1.10 The methodology presented within the TA allowed for targeted vision objectives, such as reducing education trips and commuting trips made by car, as it provided an estimated breakdown of the different journey purpose for all trips. Without this additional information, a broader vision of a 10% reduction in vehicle trips is therefore proposed. This vision still targets education and commuting trips as set out within the TA but there is less quantifiable data as to how this target will be reached.

4.1.11 A TRICS methodology modal split with a vision to reduce car driver trips by 10% is shown in **Table 4.4**.

Table 4.4: TRICS Multi-Modal Trip Generation – With Vision

	Morning Peak (0800-0900)				Evening Peak (1700-1800)			
	Arr.	Dep.	2-way	Mode share	Arr.	Dep.	2-way	Mode share
Walking								
Trip Gen.	11	34	45	16.80%	17	10	27	12.51%
Cycling								
Trip Gen.	1	5	6	2.32%	4	2	6	2.59%
Car Driver								
Trip Gen.	29	80	109	41.06%	67	36	103	47.16%
Car Passenger								
Trip Gen.	9	70	79	29.47%	47	17	64	28.98%
Public Transport								
Trip Gen.	2	25	27	10.35%	15	4	19	8.76%
Total	**52**	**214**	**266**	**100%**	**150**	**69**	**219**	**100%**

Source: TRICS

4.1.12 Therefore, with a 10% reduction in car driver trips would lead to 109 two-way trips in the morning peak and 103 in the evening peak, approximately one vehicle every 33 and 35 seconds respectively. As with the original conclusion of the TA, this is a very modest increase in traffic given the scale of development.

4.1.13 The housing with care trip generation element of the TA did not draw any comments from HCC and thus has been reproduced from the TA to determine the total level of vehicle movements in the morning and evening peaks using HCC's preferred methodology. The trip generation for the housing with care element is shown in **Table 4.5** with the total vehicle trip generation in both without and with vision scenarios shown in **Table 4.6**.

Table 4.5: Trip Generation - Housing with Care & Children's Home (Table 6.8 in TA)

	Morning Peak Hour			Evening Peak hour		
	Arr	Dep	Two-Way	Arr	Dep	Two-Way
Total Persons						
Person Trip Rate (per unit)	0.070	0.064	0.133	0.080	0.138	0.218
Trip Generation (61 units)	4	4	8	5	8	13
Total Vehicles						
Vehicle Trip Rate (per unit)	0.055	0.050	0.105	0.063	0.109	0.172
Trip Generation (61 units)	3	3	6	4	7	11

Source: TRICS

Table 4.6: Total Car Driver Trip Generation (TRICS assessment)

	AM Peak (08:00 – 09:00)			PM Peak (17:00 – 18:00)		
	Arr.	Dep.	2-Way	Arr.	Dep.	2-Way
Proposed Development – without Vision						
Vehicle Trip Generation	42	100	142	89	47	136
Proposed Development – with Vision						
Vehicle Trip Generation	32	83	115	71	43	114

Source: Consultants calculations

4.1.14 The figures in **Table 4.6** are subsequently used alongside the updated distribution and assignment work (considered in the following section) to produce a new set of operational assessments.

4.2 Updated Distribution and Assignment

4.2.1 On the distribution and assignment of development traffic, the HCC response states:

> ***'Paragraphs 7.55 – 7.59 and Table 7.3 indicate the basis for trip distribution proposed by the applicant. This should be validated against traffic counts available showing trip distribution for traffic entering and leaving Carpenders Avenue which provides a hyper-local view of likely trip distribution.'***

4.2.2 HCC have requested that the distribution and assignment methodology used within the TA be validated through the comparison between it and the turning count data collected for the existing Carpenders Avenue / Oxhey Lane (A4008) junction, which is where the proposed site access would be located.

4.2.3 For reference the methodology used in the TA demonstrated the following distribution of development traffic at the site access:

- North along Oxhey Lane (A4008) 40%
- South along Oxhey Lane (A4008) 47%
- West along Carpenders Avenue 13%.

4.2.4 The turning count data (included within the TA as Appendix C) indicates:

- North along Oxhey Lane (A4008) 45%
- South along Oxhey Lane (A4008) 45%
- West along Carpenders Avenue 10%.

4.2.5 The above demonstrates that there were minor differences in the distribution set out within the TA compared with the turning count data.

4.2.6 The use of the turning count data would result in 5% more development traffic heading north on Oxhey Lane (north), 2% less on Oxhey Lane (south)and 3% less on Carpenders Avenue.

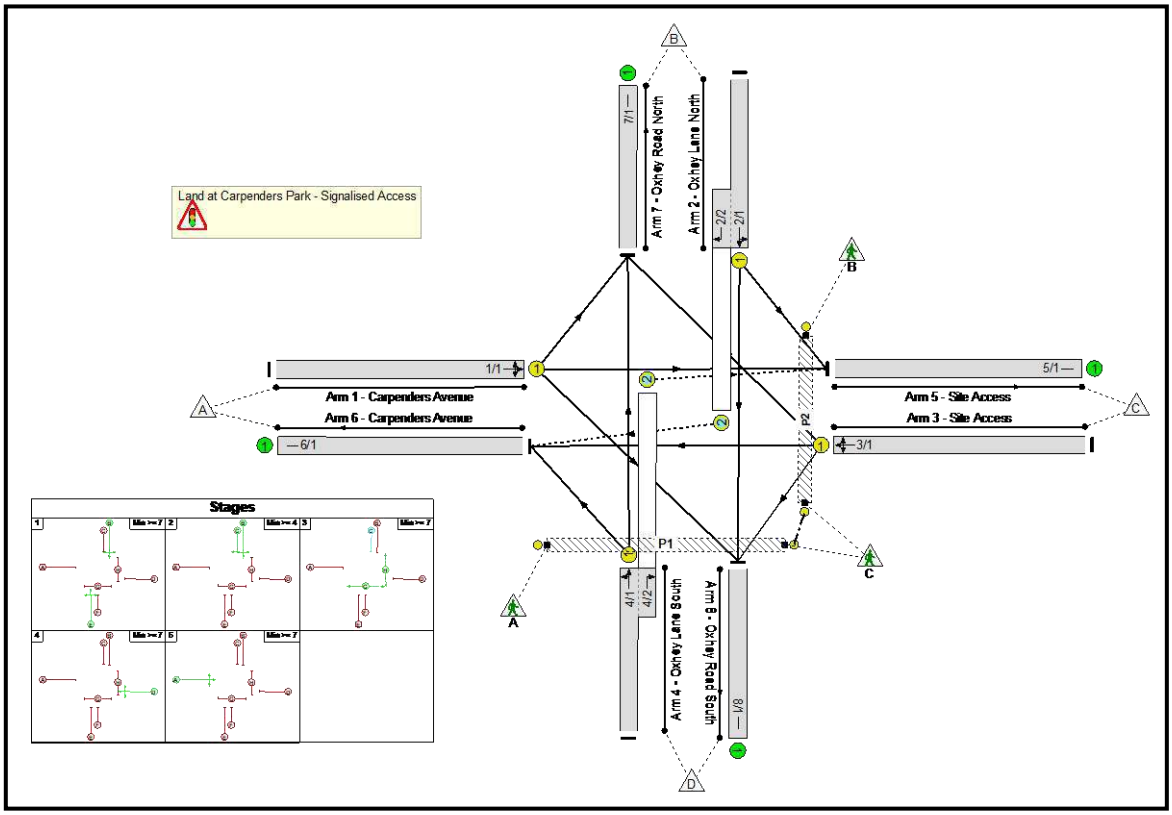
4.2.7 The distribution of development traffic has been updated to reflect these changes and has been subsequently fed into an updated set of operational assessments.

4.3 Operational Assessments

4.3.1 The Site Access / Carpenders Avenue / Oxhey Lane (A4008) junction has been remodelled in LINSIG following the update to trip generation, distribution and assignment detailed outlined in the paragraphs above. The updated outputs are compared to those presented in Section 7.6 of the Transport Assessment.

4.3.2 For completeness the model set up is included in the images below. No changes have been made to the model that was presented in the Transport Assessment other than the trip matrices which have been amended following HCC comments. The full model build report, and outputs are included as **Appendix E.**

Image 4.1: LinSig Junction Model Diagram



4.3.3 The following two tables **(Table 4.7** and **Table 4.8)** re-provide the junction model outputs from the Transport Assessment for the 'without vision' and 'with vision' scenarios, respectively.

Table 4.7: Proposed Site Access Operational Assessment - *Without Vision* (Table 7.4 in TA)

Arm	Degree of Saturation (DoS)	Mean Max Queue (PCU)	Average Delay Per PCU (Seconds/PCU)
Morning Peak Hour (08:00 – 09:00)			
Carpenders Avenue Left / Ahead / Right	80.4%	6.3	101.8
Oxhey Lane North Left / Ahead / Right	72.7%	12.1	17.0
Site Access Left / Ahead / Right	74.5%	4.1	112.3
Oxhey Lane South Left / Ahead / Right	79.6%	11.8	23.8
Evening Peak Hour (17:00 – 18:00)			
Carpenders Avenue Left / Ahead / Right	77.1%	5.5	99.5
Oxhey Lane North Left / Ahead / Right	72.9%	11.6	16.4
Site Access Left / Ahead / Right	36.2%	1.6	78.3
Oxhey Lane South Left / Ahead / Right	75.7%	10.4	21.3

Source: LinSig and Consultant Inputs. Note: Development PCU assumes: car – 1.0 PCU, HGV – 2.3 PCU

Table 4.8: Proposed Site Access Operational Assessment - *With Vision* (Table 7.5 in TA)

	Degree of Saturation	Mean Max Queue (PCU)	Average Delay Per PCU (Seconds/PCU)
Morning Peak Hour (08:00 – 09:00)			
Carpenders Avenue Left Ahead Right	79.9%	6.2	100.8
Oxhey Lane North Left Ahead Right	72.6%	11.8	17.0
Site Access Left Ahead Right	64.7%	3.3	97.9
Oxhey Lane South Left Ahead Right	79.4%	11.6	23.8
Evening Peak Hour (17:00 – 18:00)			
Carpenders Avenue Left Ahead Right	76.6%	5.4	98.6
Oxhey Lane North Left Ahead Right	72.7%	11.6	16.3
Site Access Left Ahead Right	34.4%	1.5	77.6
Oxhey Lane South Left Ahead Right	75.5%	10.4	21.3

Source: LinSig and Consultant Inputs Note: Development PCU assumes: car – 1.0 PCU, HGV – 2.3 PCU

Oxhey Lane / Carpenders Avenue / Site Access signalised junction – 2030 with Development *without Vision* scenario - Updated

4.3.4 **Table 4.9** presents the updated junction model outputs with the updated TRICS trip generation, distribution and assignment methodology in the '*without Vision*' scenario. The full results of the modelling outputs are shown in **Appendix E**.

Table 4.9: Updated - Proposed Site Access Operational Assessment - Without Vision

Arm	Degree of Saturation (DoS)	Mean Max Queue (PCU)	Average Delay Per PCU (Seconds/PCU)
Morning Peak Hour (08:00 – 09:00)			
Carpenders Avenue Left / Ahead / Right	79.9%	6.2	100.8
Oxhey Lane North Left / Ahead / Right	73.4%	12.2	17.2
Site Access Left / Ahead / Right	85.6%	5.5	149.9
Oxhey Lane South Left / Ahead / Right	80.0%	11.9	24.0
Evening Peak Hour (17:00 – 18:00)			
Carpenders Avenue Left / Ahead / Right	77.1%	5.5	99.5
Oxhey Lane North Left / Ahead / Right	73.7%	11.8	16.7
Site Access Left / Ahead / Right	39.0%	1.7	79.6
Oxhey Lane South Left / Ahead / Right	76.1%	10.5	21.5

Source: LinSig and Consultant Inputs

Note: Development PCU assumes: car – 1.0 PCU, HGV – 2.3 PCU

4.3.5 **Table 4.9** demonstrates that the proposed access junction operates well within theoretical capacity in the '*without vision*' development scenario with the updated trip generation and assignment. On Oxhey Lane South the highest mean maximum queue (MMQ) occurs in the morning peak and is 11.9 PCU which is approximately 65m in length. This is virtually unchanged from the results in the TA (shown in Table 4.7 above) at 11.8 PCU.

4.3.6 Consistent with the results in the TA, the back of the queue would be visible at a distance that allowed vehicles to reach the crest of the hill and have enough time to safely slow down before reaching the back of queuing traffic. This was shown on drawing ITL200107-GA-005 in the TA.

Oxhey Lane / Carpenders Avenue / Site Access signalised junction – 2030 with Development *with Vision* scenario- Updated

4.3.7 **Table 4.10** presents the updated junction model outputs with the updated TRICS trip generation and update distribution and assignment methodology in the '*with Vision*' scenario. The full results of the modelling outputs are shown in **Appendix E**.

Table 4.10: Updated - Proposed Site Access Operational Assessment - With Vision

	Degree of Saturation	Mean Max Queue (PCU)	Average Delay Per PCU (Seconds/PCU)
Morning Peak Hour (08:00 – 09:00)			
Carpenders Avenue Left Ahead Right	76.1%	6.1	99.9
Oxhey Lane North Left Ahead Right	73.0%	12.1	17.1
Site Access Left Ahead Right	70.1%	3.8	108.5
Oxhey Lane South Left Ahead Right	75.3%	11.8	23.8
Evening Peak Hour (17:00 – 18:00)			
Carpenders Avenue Left Ahead Right	77.1%	5.5	99.5
Oxhey Lane North Left Ahead Right	73.7%	11.8	16.7
Site Access Left Ahead Right	39.0%	1.7	79.6
Oxhey Lane South Left Ahead Right	76.1%	10.5	21.5

Source: LinSig and Consultant Inputs

Note: Development PCU assumes: car – 1.0 PCU, HGV – 2.3 PCU

4.3.8 **Table 4.10** demonstrates that the proposed access junction operates slightly better in the *with Vision* scenario than the '*without Vision*' scenario. On Oxhey Lane South, the MMQ is at its highest in the AM peak with 11.8 PCU.

4.3.9 As with the '*without vision*' scenario, the back of the queue would be visible at a distance that allowed vehicles to reach the crest of the hill and have enough time to safely slow down before reaching the back of queuing traffic.

Summary

4.3.10 The use of updated trip generation methodology alongside an amended distribution and assignment methodology has demonstrated that there would be an immaterial change to what was presented in the TA under the previous trip generation, distribution and assignment assumptions. Therefore, the conclusion within the TA is unchanged. Thus, impact from the development on the transport network are not significant in terms of capacity or congestion and fall well below 'severe'.

DRAWINGS

PROPOSED SIGN, DIAG. NO. 543
ON EXISTING LAMP COLUMN

LC

48m VISIBILITY TO
PRIMARY SIGNAL HEAD

3.0m

3.0m

3.0m

2.0m WIDE FOOTWAY

43m VISIBILITY TO
PRIMARY SIGNAL HEAD

KEEP CLEAR

3.0m

VISIBILITY TO PRIMARY SIGNAL HEAD
TO BE 33m ON SITE ACCESS ARM

PROPOSED PUFFIN CROSSING

TARMAC STRIP TO BE REMOVED
AND CONVERTED TO VERGE

3.0m

3.3m

2.0m WIDE FOOTWAY

LAMP COLUMN
TO BE RELOCATED

EXISTING UNCONTROLLED CROSSING

52.3m VISIBILITY TO
PRIMARY SIGNAL HEAD

PROPOSED SIGN, DIAG. NO. 543
(INDICATIVE LOCATION)

Cottage

The Oak

Stn B
512671.545 E
193520.623 N
87.396m

SCALE BAR @ 1:500

0 5 10 25 50

REV	DATE	BY	DESCRIPTION	CHK	APD
E	09.09.25	TA	VISIBILITY SPLAY NOTE ADDED	PH	PH
D	22.04.25	TA	DRAWING HAS BEEN AMENDED AFTER RSA COMMENTS	RW	PH
C	31.03.25	SH	ACCESS UPDATED	RW	PH
B	28.03.25	TA	SITE BOUNDARY HAS BEEN UPDATED	RW	PH
A	18.03.25	SH	PEDESTRIAN CROSSING UPDATED	RW	PH

i-Transport

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www.i-transport.co.uk

CLIENT: BURLINGTON PROPERTY GROUP

STATUS: FOR INFORMATION

TITLE: PROPOSED SITE ACCESS ARRANGEMENT - SIGNALISED JUNCTION

PROJECT: LAND AT CARPENDERS PARK

DRAWN:	CHECKED:	APPROVED:
SH	PH	PH
PROJECT No:	SCALE @ A2:	DATE:
ITL200107	1:500	12.11.24
DRAWING No:		REV:
ITL200107-GA-002		E

L:\PROJECTS\200000 SERIES\200107 - Land at Carpenders Park\Tech\Acad\1-Transport Drawings\Working Drawings\GA\ITL200107-GA-002E.dwg

APPENDIX A. HCC RESPONSE

Mark Youngman
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Stevenage
SG1 2ST

Response to Planning application from Hertfordshire County Council (T and CP GDP Order 2015)

Director of Planning
Three Rivers District Council
Three Rivers House
Northway
Rickmansworth
Hertfordshire
WD3 1RL

District ref: 25/1020/OUT
HCC ref: TR/25536/2025
HCC received: 17 July 2025
Area manager: Alan Story
Case officer: Graham Burrell

Location
Land East Of Oxhey Lane, Oxhey Lane, Carpenders Park

Application type
Outline

Proposal
Outline planning application for up to 256 homes (C3 use class) (including affordable and self/custom build housing), housing with care (C2 use class), a children's home (for looked after children) (C2 use class) together with associated access (including off-site highway works), parking, open space and landscaping (appearance, layout, landscaping and scale as reserved matters)

Recommendation
Notice is given under article 22 of the Town and Country Planning (Development Management Procedure) (England) Order 2015 that Hertfordshire County Council as Highway Authority recommends that permission be refused for the following reasons:

REASONS AND COMMENTS

Objections are raised against approval of this application for the following reasons:

i. No audit has been provided on the quality of cycling and walking routes in the vicinity of the proposed development. The sustainability of the proposal has therefore not been properly evaluated. This is considered contrary to paragraphs 109-118 of the NPPF and Policies 1, 5, 6, 7 and 8 of Hertfordshire's Local Transport Plan, 2018.

ii. The lack of bus services in the vicinity of the site has not been addressed. This further questions the sustainability of the proposal. This is considered contrary to paragraphs 109-118 of the NPPF and Policies 1, 5, 6, 7, 8 and 9 of Hertfordshire's Local Transport Plan, 2018.

iii. Trip generation, distribution and assignments provided in the TA are not acceptable. This is considered contrary to paragraph 118 of the NPPF which requires a vision-led transport assessment so that the likely impacts of the proposal can be assessed and monitored.

iv. No safety audit has been provided in respect to the two proposed new accesses. This is considered contrary to paragraph 118 of the NPPF which requires a vision-led transport assessment so that the likely impacts of the proposal can be assessed and monitored.

v. No assessment has been made on the impact of the development on street trees. This is considered contrary to paragraph 118 of the NPPF which requires a vision-led transport assessment so that the likely impacts of the proposal can be assessed and monitored.

vi. The TA does not provide a gradient profile for the proposed new road onto the A4008. This is considered contrary to paragraph 118 of the NPPF which requires a vision-led transport assessment so that the likely impacts of the proposal can be assessed and monitored.

vii. Visibility splays from the junction are not provided in the TA. This is considered contrary to paragraph 118 of the NPPF which requires a vision-led transport assessment so that the likely impacts of the proposal can be assessed and monitored.

viii. The proposed access onto the A4008 is considered contrary to policy 5(f) of HCC's Local Transport Plan, 2018.

Background
The application is for outline planning application for up to 256 homes (C3 use class) (including affordable and self/custom build housing), housing with care (C2 use class), a children's home (for looked after children) (C2 use class) together with associated access (including off-site highway works), parking, open space and landscaping (appearance, layout, landscaping and scale as reserved matters). A Transport Assessment (TA) has been provided to support the application.

As noted in the TA, HCC provided pre-application comments to the applicant earlier this year. These comments included the recommendation that "a scope for the TA is agreed with the highway authority prior to its preparation as part of its pre-application process". This was not however taken up by the applicant and no scope for the TA was agreed.

It is noted that the TA includes an "Illustrative Masterplan" for the site. No commentary is provided on this. This would be a matter for consideration as reserved matters post any approval of the current Outline application.

Policy
Relevant policy considerations include the NPPF and HCC's Local Transport Plan (LTP) 4 (2018).

LTP 4 Policy 1 (Transport User Hierarchy) considers that "To support the creation of built environments that encourage greater and safer use of sustainable transport modes, the county council will in the design of any scheme and development of any transport strategy consider in the following order:
• Opportunities to reduce travel demand and the need to travel

• Vulnerable road user needs (such as pedestrians and cyclists)
• Passenger transport user needs
• Powered two-wheeler (mopeds and motorbikes) user needs
• Other motor vehicle user needs."

LTP 4 Policy 5 (Development Management) states that 'The county council will to work with development promoters and the district and borough councils to:
a) Ensure the location and design of proposals reflect the LTP Transport User Hierarchy and encourage movement by sustainable transport modes and reduced travel demand.
b) Ensure access arrangements are safe, suitable for all people, built to an adequate standard and adhere to the county council's Highway Design Standards.
c) Consider the adoption of access roads and internal road layouts where they comply with the appropriate adoption requirements and will offer demonstrable utility to the wider public. Where internal roads are not adopted the county council will expect suitable private management arrangements to be in place.
d) Secure developer mitigation measures to limit the impacts of development on the transport network, and resist development where the residual cumulative impact of development is considered to be severe.
e) Require a travel plan for developments according to the requirements of 'Hertfordshire's Travel Plan Guidance'.
f) Only consider new accesses onto primary and main distributor roads where special circumstances can be demonstrated in favour of the proposals.
g) Resist development that would either severely affect the rural or residential character of a road or other right of way, or which would severely affect safety on rural roads, local roads and rights of way especially for vulnerable road users.
h) Ensure new developments provide facilities for charging plug-in and other Ultra Low Emission vehicles, as well as shared mobility solutions such as car clubs.

HCC LTP Policy 6 seeks to address accessibility. Policies 7 and 8 address walking and cycling respectively with policy 8 seeking a step change in cycling. Policy 9 seeks to promote and support bus services to encourage reduced car use.

Hertfordshire's Place and Movement Planning & Design Guidance was formally adopted in 2024 as a supporting document for HCC's Local Transport Plan.
Site
Oxhey Lane (A4008) is considered to be a P2/M2 road under P&MPDG, albeit this is queried by the applicant in the TA. It is categorised as a Main Distributor Road. It has street lighting and a 40mph speed limit. The TA states that "northbound 85th percentile speeds range from 34.4mph to 40.0mph, and southbound between 34.6mph and 41.3mph" with southbound and northbound 85th percentile speeds of 37-38 mph at the Automatic Traffic Counter (ATC 1) situated just south of Carpenders Avenue.

A public right of way – footpath Bushey 025 – starts opposite Carpenders Avenue in Oxhey Lane and provides a link to Merry Hill. Separate comments will be provided by HCC's Rights of Way team.
Section 3.8 of the TA details casualty data in the area for the last five years one involving a cyclist. Two serious and two slight injury incidents are noted. Two incidents involving injury took place in Carpenders Avenue, and two in Oxhey Lane.

The TA states that "The two serious PIAs were both caused by driver error. One of these involved a speeding vehicle travelling east on Carpenders Avenue over the brow of a hill, and crashed into a vehicle heading west as they did not react in time due to irresponsible speeds. The other serious PIA occurred when a driver failed to look properly when pulling out of Carpenders Avenue onto Oxhey

Lane, resulting in sudden braking of a motorcyclist and a collision." The TA further notes that "there does not appear to be any existing highway safety concern close to the site, that the proposed development traffic would be exacerbating".

The site is about 1km from Carpenders Park railway station which has shops including a supermarket and pharmacy in its vicinity. Buses currently route via Carpenders Park railway station as indicated below.

Carpenders Avenue which links the site to the railway station is identified as a Key Walking Route in the LCWIP for this area.

Sustainability
Table 3.3 and Image 3.5 sets out the location of local facilities including a post office and food store at 800 metres. The applicant however appears not to have carried out a formal audit of the quality of local routes for cycling and walking in the vicinity of the site. This is a standard requirement for larger developments of this size. There are various methodologies for such an audit. HCC would not seek to be prescriptive in this respect. HCC's P&MPDG states "An example of good practice is the Active Travel Zone methodology developed by TfL."

The TA does reference the LCWIP identification of Carpenders Avenue as a key walking route with a suggestion of this being a potential planning obligation. It does not however provide any information on what it regards as necessary interventions in this respect. As noted below any such obligations need to be considered as Strand 1 obligations (HCC Guidance on Planning Obligation refers).

In respect to public transport, the TA notes that Carpenders Park railway station is about 1km from the site. It also notes that "the nearest bus stop is circa 700m." HCC's P&MPDG states an expectation all occupied parts of development should be within 400m walking distance of a bus stop or transport hub by public walking route". The TA does not address this shortfall in bus accessibility.

In summary, the TA is considered inadequate in assessing the sustainability of the site. It does not provide a formal audit of the quality of cycling and walking routes in the vicinity of the site. The TA also notes excessive distances to access bus services but offers no possible interventions to address this. This is considered contrary to paragraph 118 of the NPPF which states a requirement for a "vision-led transport statement or transport assessment so that the likely impacts of the proposal can be assessed and monitored." It is also contrary to Policies 1, 5, 6, 7, 8 and 9 of HCC's Local Transport Plan 2018. An objection is raised in this respect.

To assist the applicant in their consideration of the bus stop accessibility HCC's bus service team has noted a possible way of addressing bus service provision related to the proposed development. This might be useful for the applicant to consider. They have suggested a service to complement Service 328 from South Oxhey to Watford, extending it to the new site. The new service could operate from the site via A4008 and B4542 down to Prestwick Road, then via a variation of the current 328 into Watford. There could be an option of extending this up to Watford Junction. This is offered as one possible solution for the applicant to consider. Alternative proposals are welcomed and will be considered by our public transport team.

Access
A vehicular access is proposed directly onto the A4008. As noted above Policy 5(f) of HCC's Local Transport Plan 2018 states that HCC as HA will "Only consider new accesses onto primary and main distributor roads where special circumstances can be demonstrated in favour of the proposals". In this respect the proposal was considered by HCC's Strategic Transport Infrastructure Board (STIB)

on 5 March 2025. The view of STIB was that on the basis that this site does not have Local Plan designation it should not be deemed to have special circumstances at the current time.

The TA states that “this policy must be taken in the context of the NPPF, whereby developments should be assessed against the four key tests as noted above.” Paragraph 2.4.1 of the TA states that “The NPPF identifies four key transport tests which can be summarised as follows:” This includes “Will the site layout comply with design guidance?”. In this respect, Hertfordshire’s Place and Movement, Planning & Design Guidance, 2024, clearly references policy 5(f).

The TA does not set out any special circumstances. An objection is therefore raised as the applicant has failed to demonstrate special circumstances; the application for an access onto the A4008 is therefore considered contrary to policy 5(f) of HCC’s Local Transport Plan, 2018.

In addition to the above, an emergency service access into the site from Oxhey Lane is proposed to the south of the existing care home.

No road safety audit (or Designer's Response) has been provided. This is contrary to advice provided at pre-application stage and contrary to HCC’s P&MPDG. This is a necessary requirement. For this site, the TA also notes departures from standards in respect to intervisibility, which raises specific safety concerns.

The pre-application comments also drew especial attention to the need to consider whether any street trees would be affected by the applicant’s proposal. This appears not to have been addressed in the TA. HCC’s street tree strategy is located here:
https://www.hertfordshire.gov.uk/media-library/documents/highways/plans-and-strategies/highway-tree-strategy-and-guidance-document.pdf

Visibility splays from the proposed new junction are also not provided in the TA.

The gradient profile of the proposed new road onto the A4008 has not been provided.

Modelling of the proposed new junction arrangement is provided in the TA. The methodology for the trip generation, distribution and assignment for the proposed site was not agreed with HCC. The methodology used in the TA is not considered acceptable for the reasons stated below. The modelling is therefore regarded as premature.

It is noted that Hertfordshire’s Fire Service have provided separate comments on the proposed accesses and have not raised any issues at this stage.

Trip generation, distribution and assignment
The TA does not use the national standard trip data-base, TRICS, to provide a predicted number of trips by car. The TA justifies this by stating that “the site is unique in that it is not within the Greater London boundary, yet it has access to a regular London Overground service linking it to key destinations within Central London and Watford. There are very few sites within TRICS database with similar characteristics, and therefore a representative level of multi-modal trip rates may not be obtained from any multi-modal TRICS outputs.”

It is not accepted that the site’s location c.1km from a London Overground station “but not in London” makes this a unique site. Neither is it accepted that there are no TRICS sites with similar characteristics. It is noted that the railway line in question became a London Overground station in 2007 and prior to that offered a service to the capital like many other railway lines radiating out from London, which is still its function. The TA does not state why the change of this line from a

“Silverlink” service” to a “London Overground” service makes the applicant’s site “unique” or excludes an exercise in identifying sites with similar characteristics. As noted, HCC as highway authority encouraged the applicant to engage with it on the scoping of the TA prior to its preparation. This was not pursued by the applicant.

The TA goes further in its claim for the unique status of this site stating (in paragraph 6.4.1 that “the excellent public transport connections are of a different character to sites outside Greater London” requiring “bespoke multi-modal trip rates for this site.” The suggestion of “excellent public transport connections” is not though established in the TA. The railway station at 1km from the site entrance is in excess of 800 metres, a distance often defined as the distance for a “Walkable Neighbourhood”. Bus services are currently not available within the 400 metres detailed in HCC’s P&MPDG. It is difficult to see how the applicant considers the site to have “excellent public transport connections”. Reference to “excellent public transport” is often aligned to a PTAL rating of 6. If the applicant is making this specific claim, evidence should be provided to support this.

The ”unique” status of this site claimed by the applicant is not considered as an acceptable basis for not deriving multi-modal trip rates from the industry standards TRICS database.

For noting, the trip generation set out in the TA pursues a route whereby total trips are derived from TRICS sites and then applying a TEMPro for modal split and trip purpose data. The view of HCC as highway authority does not accept a departure from the standard process of establishing vehicular trips directly from TRICS on the basis of proximity of a London Overground station. Further, the use of 2011 Census Journey is still considered to offer the best means of considering Journey to Work data, once account is taken of developments since 2011 and planned developments. The basis for dependence on what the TA terms “bespoke” multi-modal trip rates is not accepted.

The applicant should provide trip generation figures based on a methodology agreed with HCC as highway authority. The applicant might wish to validate this against their TEMPro and National Travel Survey approach.

Paragraphs 7.55 – 7.59 and Table 7.3 indicate the basis for trip distribution proposed by the applicant. This should be validated against traffic counts available showing trip distribution for traffic entering and leaving Carpenders Avenue which provides a hyper-local view of likely trip distribution.

Travel Plan

A Framework travel plan has been submitted as part of the planning application. This has been assessed by HCC’s travel plan team. Initial comments are provided below. At this stage the framework travel plan is not considered acceptable.,

The team notes that there is no mention within the Travel Plan or Transport Assessment of improvements to bus accessibility – either infrastructure or services. The closest bus stop is 700m away (according to the Travel Plan) which is over the recommended accessibility criteria that we use. Discussions with our Integrated Passenger Transport Unit should take place to ascertain suitable measures to improve bus accessibility and attractiveness at the site. Without improvement, Travel Plan targets may not be achieved. Whilst there is a rail station within walking/cycling distance this only provides access to destinations accessible via the rail network.

This Travel Plan is good in some areas, although will require more detail and clarity before we can approve, in particular in relation to duration of the residential Travel Plan, management structure for the residential Travel Plan and any other on-site Travel Plans, and greater clarity over targets, monitoring frequency, methods and plan review.

Individual Full Travel Plans will need to be produced for the residential element and also for the housing with care. No. of beds is not given for the children's home but that will require a Travel Plan Statement if it has between 30-50 beds and a Full Travel Plan if over this.

Detailed comments on the draft framework travel plam follows:
Travel Plan Management

- Travel Plan Co-Ordinators will be required for each Travel Plan. Contact details of the Travel Plan Co-Ordinator and that of a secondary contact in case of personnel changes should be made available to HCC on appointment. Time allocated to role and frequency on site should be given once known.
- A residential Travel Plan is expected to be in place until 5 years post full occupation, 5 years from first occupation for C2 land uses.
- Detail should be given as to the management structure – eg land use specific Travel Plans with their co-ordinators and a site-wide Travel Plan Co-Ordinator with overall responsibility for delivery of Framework Plan, and a mechanism for these individuals to liaise with each other and relevant stakeholders – eg a forum/steering group where site-wide issues can be discussed.
- We require a statement of management commitment from a suitable member of senior management - this demonstrates commitment to the robust implementation of the Travel Plan. This should be provided prior to occupation of the site.

Measures

- These are generally appropriate and should be further tailored to the land use in question when individual Travel Plans are prepared.
- We require provision of residential travel vouchers (see paragraph 4.14-4.15 p13 of our Travel Plan Guidance (see www.hertfordshire.gov.uk/travelplans) to the value of £50 per flat, £100 per house (index-linked to RPI from May 2014). These ideally should be redeemable against multiple sustainable modes to maximise uptake (public transport and cycle equipment is mentioned in the Travel Plan but not walking equipment). Vouchers towards bus services should be discussed with our Integrated Passenger Transport Unit. We would also expect discounts to be made available as measures within the C2 land uses in any individual Travel Plans for those uses (eg Cycle to Work scheme, season ticket loans).
- Promotion of our Intalink website for bus information (https://www.intalink.org.uk/), our cycling webpages (https://www.hertfordshire.gov.uk/services/health-in-herts/keep-active/hertfordshire-cycling.aspx), and Hertfordshire Health Walks (https://www.hertfordshire.gov.uk/services/recycling-waste-and-environment/countryside-management/hertfordshire-health-walks/hertfordshire-health-walks.aspx) should be included.

Targets, monitoring and action plan

- The vision for trip reductions from the site (5.1.2) only applies to trips associated with local schools and commuting, whilst the target that is given later within the same section (5.1.4, 5.2.8 and 5.2.11) - a 10% reduction does not specify particular trips. Modal shift proposed is on a par with what we would require - we require a min 10-15% mode shift (percentage change) for a Travel Plan in place for 5 years. However targets and measures should apply to all trips. We acknowledge that there is greater potential for mode shift in certain trip types than others given opportunities at the site – this is true of all sites.
- Text about monitoring frequency is muddled with some paragraphs appearing to suggest annual monitoring, others alternate year monitoring and from different start points. The Action Plan is clearer, but only suggests traffic survey in alternate years, questionnaires annually for 5 years, and a monitoring report in years 1,3, and 5. We will accept the suggestion of monitoring starting at 50% occupation, but do require annual TRICS SAM standard monitoring and questionnaire surveys for a site of this scale. We often find that questionnaires to not achieve a high response rate.

Traffic counts if done as well provide a more adequate level of data on which to review the measures and targets. Review of the Travel Plan will be required annually.

HCC will seek Support and Evaluation fees of £6,000 index linked by RPI to May 2014 for both travel plans, i.e. a total index linked figure of £12,000.

Planning obligation
Planning obligation in respect to travel plans are noted above.

Three Rivers District Council has adopted a CIL. Any additional planning obligations would therefore need to be Strand 1 obligations. This could potentially include measures to address the quality of local walking and cycling routes including measures along the “Key Walking Route” and bus service improvements. None of these issues have yet been evaluated by the applicant.

Conclusion
Objections are raised against approval of this application for the following reasons:
i. No audit has been provided on the quality of cycling and walking routes in the vicinity of the proposed development. The sustainability of the proposal has therefore not been properly evaluated. This is considered contrary to paragraphs 109-118 of the NPPF and Policies 1, 5, 6, 7 and 8 of Hertfordshire’s Local Transport Plan, 2018.
ii. The lack of bus services in the vicinity of the site has not been addressed. This further questions the sustainability of the proposal. This is considered contrary to paragraphs 109-118 of the NPPF and Policies 1, 5, 6, 7, 8 and 9 of Hertfordshire’s Local Transport Plan, 2018.
iii. Trip generation, distribution and assignments provided in the TA are not acceptable. This is considered contrary to paragraph 118 of the NPPF which requires a vision-led transport assessment so that the likely impacts of the proposal can be assessed and monitored.
iv. No safety audit (or Designer's Response) has been provided in respect to the two proposed new accesses. This is considered contrary to paragraph 118 of the NPPF which requires a vision-led transport assessment so that the likely impacts of the proposal can be assessed and monitored.
v. No assessment has been made on the impact of the development on street trees. This is considered contrary to paragraph 118 of the NPPF which requires a vision-led transport assessment so that the likely impacts of the proposal can be assessed and monitored.
vi. The TA does not provide a gradient profile for the proposed new road onto the A4008. This is considered contrary to paragraph 118 of the NPPF which requires a vision-led transport assessment so that the likely impacts of the proposal can be assessed and monitored.
vii. Visibility splays from the junction are not provided in the TA. This is considered contrary to paragraph 118 of the NPPF which requires a vision-led transport assessment so that the likely impacts of the proposal can be assessed and monitored.
viii. The proposed access onto the A4008 is considered contrary to policy 5(f) of HCC’s Local Transport Plan, 2018.

HCC as highway authority recommends that the planning application is not approved for the reasons detailed above.

Signed
Graham Burrell

6 August 2025

APPENDIX B. WALKING AND CYCLING AUDIT

i-Transport LLP
33 Queen Street, London, EC4R 1AP

Tel: 0204 531 3660

Land at East of Oxhey Lane, Carpenders Park: Walking & Cycling Appraisal

Ref: RW/JL/ITL200107-007
Date: 20 August 2025

SECTION 1 Introduction

1.1 Overview

1.1.1 A detailed walking and cycling appraisal has been undertaken by i-Transport LLP to assess the off-site active travel opportunities of land east of Oxhey Lane, Carpenders Park. This assesses the links to and from the Site to key local destinations and services in the area. The appraisal includes a review of existing walking and cycling environments to/from the Site and the need for, and scope of, any possible future enhancements to these routes.

1.1.2 The appraisal has followed criteria that align with the requirements of Active Travel England guidance. Potential improvements which could assist in enhancing the accessibility of the Site by active travel modes as well as benefit existing users are identified.

1.1.3 The routes identified were assessed as the key routes for future residents travelling to off-site destinations. The agreed routes help connect and integrate the Site to Carpenders Park and South Oxhey.

1.1.4 The proposals involve the development of land east of Oxhey Lane to provide for up to 256 homes housing with care and a children's home (for looked after children).

1.2 Key Walking & Cycling Routes

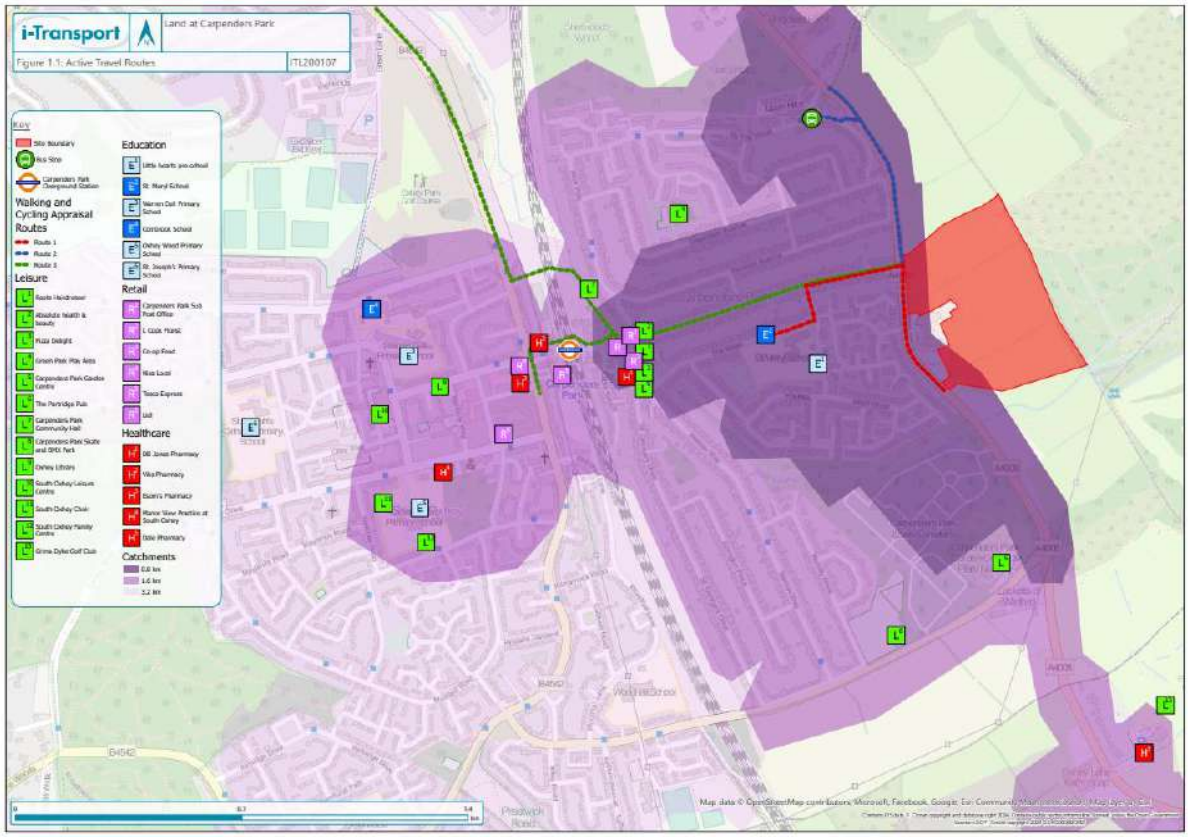
1.2.1 The routes for appraisal have been chosen as they would represent potential key connections between the development Site and local amenities on foot and cycle. The routes would connect the Sites to existing retail, education, leisure and public transport facilities.

1.2.2 The key routes identified are as follows:

- Route 1 (red) – To St. Meryl School & Little hearts pre-school
- Route 2 (blue) – To bus stops on By The Wood
- Route 3 (green) – To Carpenders Park station and South Oxhey local centre

1.2.3 The routes assessed are shown in **Figure 1.1**.

Figure 1.1: Active Travel Routes



1.3 Appraisal Criteria

1.3.1 A qualitative appraisal of each of the routes has been informed by Site visits undertaken in November 2024 and a further desktop appraisal in August 2025. Each route was audited, noting the presence and conditions of facilities along with a photographic record of key points.

1.3.2 Each route has been assessed against the following criteria which have been developed with reference to whether routes are safe, direct, convenient and accessible for people of all abilities (paragraph 82 of the National Design Guide) and / or coherent, direct, safe, comfortable and attractive (core design principles in LTN 1/20):

1 **Accessibility** – How steep is the link? Are there any steps or barriers on the routes?

2 **Safety & Comfort** – How wide is the provision for pedestrians and cyclists on the link? Is it possible for pedestrians to pass each other (or walk side by side) without stepping into the path of vehicles? What is the quality of route surface and drainage? How suitable are the crossing types and locations?

3 **Directness** – How much does route deviate from a *straight line* route? Are the crossing locations aligned with the desire lines? Are there delays to path users at crossings?

4 **Attractiveness** – Are there places to rest or shelter on the route? Is the route well lit? Is there potential for interaction between other modes? Is the route well overlooked by adjacent buildings and/or other link users (e.g. vehicles)?

5 **Cohesion** – How easy is it navigate, and way find on the route? Is the direction of the route clear and are there way finding points as you traverse along the link? How close is the route to other destinations, including public transport interchanges?

6 **Environment** – How attractive is the environment in terms of architecture, vehicle volumes and speeds, surfacing, viewpoints, etc? On links with higher traffic flows / speeds, is there wide footways or segregation from the carriageway by a verge?

1.3.3 These criteria reflect the metrics set out in the Active Travel England (ATE) Path Check and Path Placemaking Check, within the ATE Route Check Tool.

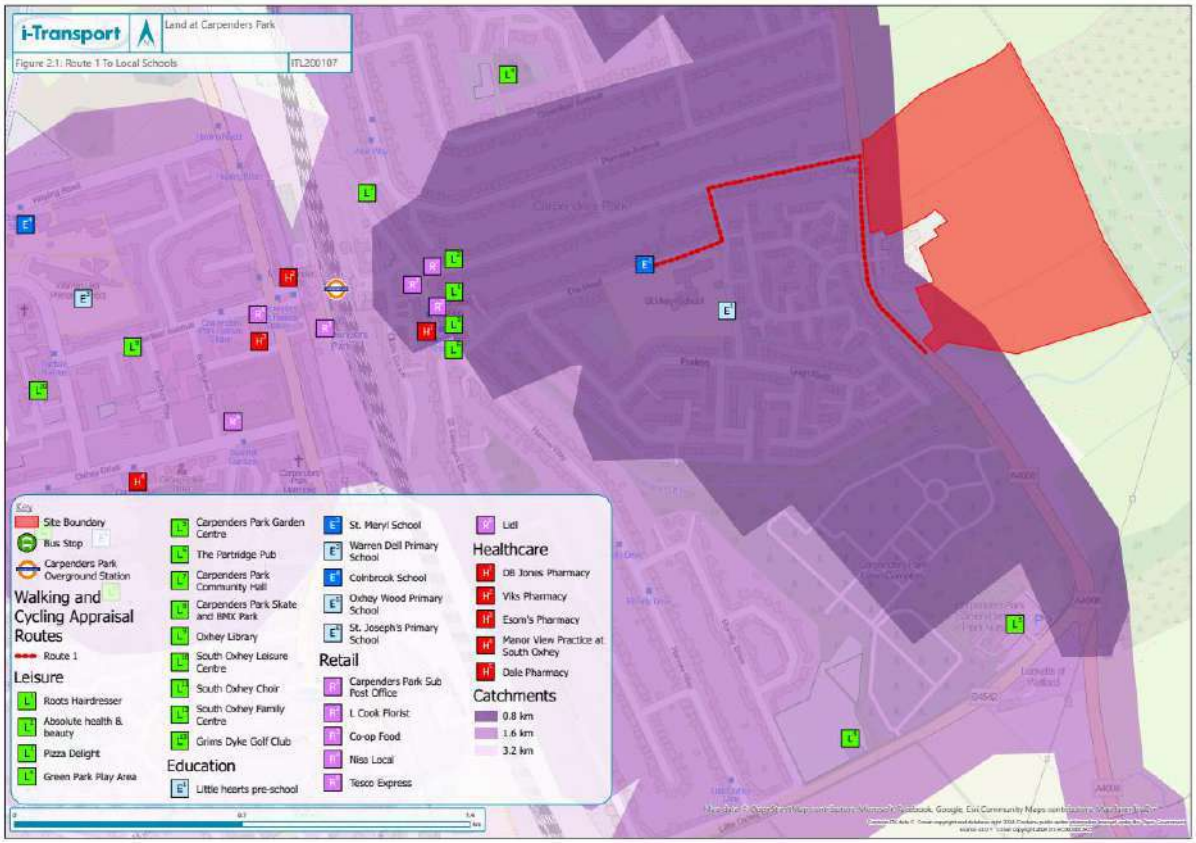
SECTION 2 Route Appraisal

2.1 Route 1 – To St. Meryl School and Little Hearts pre-school

Walking & Cycling Route: To St. Meryl School and Little Hearts pre-school via A4008, Carpenders Avenue or Highfield

2.1.1 This route connects the site to the nearest primary school (St. Meryl School) and pre-school (Little Hearts pre-school). The route is in shown in Figure 2.1. The distance to each facility is circa 700-800m from the centre of the site.

Figure 2.1: Route 1 To Local Schools



2.1.2 The route begins at either the proposed vehicle access or one of the other proposed pedestrian / cycle access locations on Oxhey Lane.

2.1.3 A continuous footway is provided along the eastern side of Oxhey Lane on the site frontage. In the vicinity of the proposed emergency access (south of the Care Home), the footway is circa 2.0m in width (Image 2.1). It narrows to 1.0m as it heads north due to the presence of a grassed verge (Image 2.2).

2.1.4 There is a slight gradient as Oxhey Lane routes north. Street lighting is provided on the western side of the road but not the eastern side where the footway is located. Additional street lighting could be provided on the eastern side of the carriageway to improve feeling of safety.

2.1.5 Oxhey Lane has a consistent level of traffic with recorded vehicle speeds of between 30-40mph which may decrease feelings of comfort. There is no off-carriageway cycle infrastructure, and so cycling would be on-carriageway mixed with traffic.

Images 2.1 (looking south) & 2.2 (looking north): Oxhey Lane footway (south of care home)

2.1.6 The footway widens as it heads north although the surface has degraded (Image 2.3). The route continues with a slight uphill gradient.

Images 2.3 and 2.4: Footway on Oxhey Lane (looking south)

2.1.7 As it reaches the access junction into Carpenders Park care home, the grassed verge ends and the footway widens, with tactile paving and dropped kerb provided across the site access junction (Image 2.4). At this location the gradient reduces as the route reaches the crest of the hill.

Images 2.4: Crossing at Carpenders Park care home access

2.1.8 From this point northwards there is a slight downhill gradient. The footway remains 2.0m wide, although there is evidence of leaf litter and vegetation reducing the effective width of the footway, as shown in Image 2.5. Street lighting is also provided on the eastern side of the carriageway from this point northwards.

2.1.9 An uncontrolled pedestrian crossing is currently provided 105m north of the care home access junction. The crossing is equipped with dropped kerbs, tactile paving and pedestrian refugee island (Image 2.6). This is the only crossing point on Oxhey Lane in the vicinity of the site.

Images 2.5 and 2.6: Oxhey Lane footway (looking north) and pedestrian refuge island

2.1.10 The proposals include the construction of a new four-way signalised junction at the junction of Oxhey Lane with Carpenders Avenue. The junction would feature a signalised pedestrian crossing of the site access arm and on the southern arm of Oxhey Lane, providing safe pedestrian crossing of Oxhey Lane (existing junction shown on Image 2.7). This junction would form the primary vehicle and pedestrian route from the site. There is existing signage directing users towards Carpenders Park station and local centre.

Image 2.7: Carpenders Avenue / Oxhey Lane junction

2.1.11 The route continues west down Carpenders Avenue. Carpenders Avenue is residential in character, with footways, street lighting and passive surveillance provided on both sides of the road.

2.1.12 A grassed verge separates the footway from the carriageway. The footway width varies between 1.8m-2.0m. There is an overgrown area of hardstanding (shown behind the lamp column in Image 2.8) on the southwestern corner of the junction which should be removed and replaced with grassed verge to discourage crossing at this location due to proximity to the junction.

Image 2.8: Footway at junction (looking east)

2.1.13 The route continues west on Carpenders Avenue, with variable footway widths of 1.5-2.0m. The footway continues across driveways to residential properties, with areas of grassed verge provided intermittently. There are areas where the footway is cracked and has degraded and could be improved, as identified in Image 2.9. There is a slight gradient on Carpenders Avenue as it routes west.

Image 2.9: Footway on south side of Carpenders Avenue

2.1.14 This part of the route extends for circa 200m before meeting a priority junction with Foxleys (Image 2.10). There is a lack of suitable dropped kerb and tactile paving provision at this junction, which could be provided to improve safety and accessibility. The route continues south on Foxleys, with footways of 1.5m provided on both sides of the carriageway, separated by a grassed verge. This part of the route extends for circa 80m.

Image 2.10: Carpenders Avenue junction with Foxleys

Source: Google Maps

2.1.15 Foxleys meets The Mead at a priority junction, and the route continues west on The Mead to the school on the south side of The Mead. There is dropped kerb provision but no tactile paving provided in this location. This is likely to be the main crossing point for those travelling to the school from the north and east, and should be accessible for all.

Image 2.11: Foxleys junction with The Mead

Source: Google Maps

2.1.16 It is worth noting that there is an alternative routing via Highview, however, given the locations of the crossing points requiring a significant amount of doubling back to reach Highview it is unlikely to be a regularly used route by residents. For all residents exiting the site via the main access the route discusses above is the most straightforward and logical.

Route 1 – Appraisal

Table 2.1: Walking & Cycling Appraisal - Route 1

Appraisal Criteria	Comments
Accessibility	• There are short sections of narrow footway that could be widened. • There are gradient changes on Oxhey Lane and Carpenders Avenue, although these are not particularly steep. • There is a lack of tactile paving provision at minor junctions such as Foxleys and The Mead. Potential improvements: • Tactile paving could be provided to improve the accessibility of the route the school at Foxleys and The Mead. • The footway on Oxhey Lane south of the care home could be widened using some of the grassed verge.

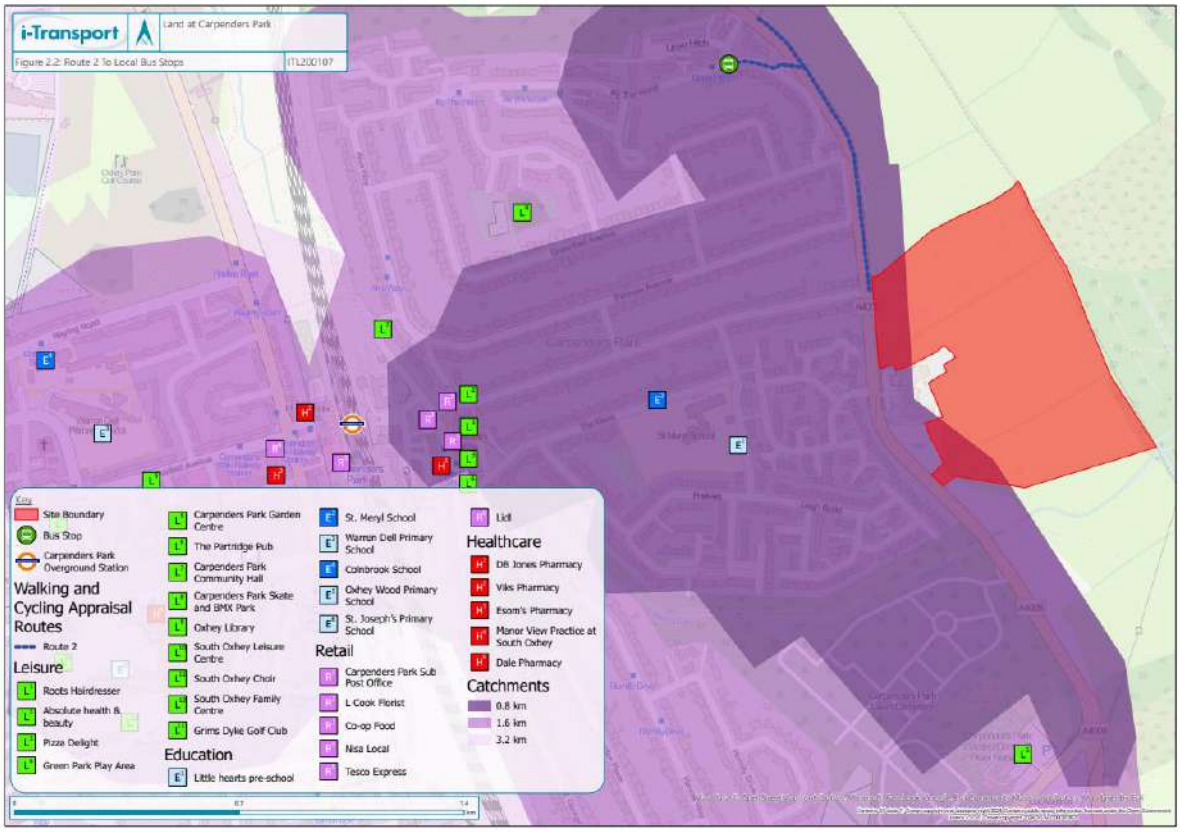
Appraisal Criteria	Comments
Comfort	• Oxhey Lane has a consistent level of traffic with speeds up to 40mph which may reduce feeling of comfort. Carpenders Avenue and surrounding streets are residential in nature which is more comfortable. • There are short sections of narrow footway that could be widened to improve comfort. • There are sections of footway surfacing that is cracked and degraded and could be improved • There is no signalised pedestrian crossing on Oxhey Lane • The school is within a comfortable walking distance • The route is mostly street lit with passive surveillance, although some extra street lighting could be provided on Oxhey Lane south of the care home Potential Improvements: • An area of footway on Oxhey Lane could be widened and provided with street lighting to improve feelings of safety and comfort. • Surfacing improvements could be implemented on footways on Oxhey Lane and Carpenders Avenue.
Directness	• There is one uncontrolled pedestrian crossing on Oxhey Lane which would not necessarily serve future pedestrian desire lines. • The route is direct for those who could depart the site from the main access. For those departing from further down Oxhey Lane, the route is longer and less direct, with only one existing pedestrian crossing on Oxhey Lane. Potential Improvements: • There is a lack of direct pedestrian crossing on Oxhey Lane. The provision of a signalised pedestrian crossing on Oxhey Lane would be required, in line with pedestrian desire lines down Carpenders Avenue.
Attractiveness	• There is a lack of signalised pedestrian crossing location on Oxhey Lane • Oxhey Lane has consistent traffic flows and speeds are between 30-40mph, which may deter some users from walking or cycling • Carpenders Avenue is residential in character with low vehicle speeds and footways on both side of the road, street lighting and passive surveillance Potential Improvements: A controlled pedestrian crossing should be provided to provide a safe crossing location.
Cohesion	• The route to the school is easy to navigate with street signage provided • Carpenders Park station and local centre are both signposted at the junction of Oxhey Lane / Carpenders Avenue.
Environment	• The route crosses Oxhey Lane which has modest traffic volumes and speeds • Carpenders Avenue, Foxleys and The Mead are quieter residential roads with lower speeds and segregation from the carriageway by grassed verge.

2.2 Route 2 – to bus stops and north to Watford

Walking & Cycling Route: To local bus stops on By The Wood via A4008 and onward journey to Bushey

2.2.1 This route connects the site to the nearest bus stops on By The Wood, and also onward travel to Bushey on the A4008 Oxhey Lane via a shared footway / cycleway. The route to the bus stops is in shown in Figure 2.2. The distance to the local bus stop is circa 700m from the site.

Figure 2.2: Route 2 To Local Bus Stops



2.2.2 The route heads north on Oxhey Lane from the site. A continuous footway is provided on the east side of Oxhey Lane. The footway is circa 2.0m wide but the effective footway width is reduced to 1.8m due to the presence of vegetation and leaf litter, as shown in Image 2.12. Street lighting is provided at intervals along the footway.

2.2.3 Oxhey Lane has consistent traffic flows and speeds of 30-40mph which may reduce feelings of comfort. Within the vicinity of the site, there is no cycling infrastructure, so cycling would need to be either within the carriageway or bicycles walked northward until the footway becomes a shared footway / cycleway.

Image 2.12: Footway on east side of Oxhey Lane (looking north)

2.2.4 The footway continues north with widths of around 2.0m. At around 290m north of Carpenders Avenue, the footway becomes a shared footway / cycleway. There is signage provided to indicate the start/end of the shared provision (Image 2.13), but there are no road markings or tactile paving, and the path is not noticeably wider than the footway to the south. The path narrows around a mature tree in the footway, which would not support two-way passage.

Image 2.13: Shared footway / cycleway on Oxhey Lane (looking north)

Source: Google Maps

2.2.5 The route continues north on the shared footway / cycleway. The route crosses Oxhey Lane south of the junction with By The Wood, where an uncontrolled pedestrian / cyclist crossing is provided (Image 2.14). The crossing is equipped with dropped kerbs, tactile paving, pedestrian refuge island and lamp column. There is good pedestrian visibility both north and south of the crossing location. Signage towards Merry Hill, Carpenders Park and Delta Gain shops are provided at the crossing.

Image 2.14: Uncontrolled pedestrian crossing on Oxhey Lane

Source: Google Maps

2.2.6 The route continues north on the west side of Oxhey Lane where a grassed verge separates the shared footway / cycleway from the carriageway. The route reaches the By The Wood junction (Image 2.15), where an uncontrolled pedestrian crossing with dropped kerbs and tactile paving are provided, although these are slightly degraded with some vegetation growth.

Image 2.15: By The Wood crossing

Source: Google Maps

2.2.7 The effective width of the footway on the north side of the junction is narrowed to around approximately 1.0m due to the presence of vegetation, which will require maintaining during summer months (Image 2.16). There is street furniture including signage and street lighting in the grassed verge so there is not much opportunity to increase the width of the footway in this location.

Image 2.16: By The Wood footway

Source: Google Maps

2.2.8 The footway then widens to around 5.0m for a short section as the route continues northwest along By The Wood. Observations across several years using Google Maps demonstrates that much of this footway is used for pavement car parking, as shown in Image 2.15 previously and 2.17. This may prevent some users from using the footway.

Image 2.17: By The Wood footway car parking

Source: Google Maps

2.2.9 By The Wood is residential in character and provides access to a large residential neighbourhood with green space, street trees and grassed verges, making for a pleasant environment with street lighting and lots of passive surveillance.

2.2.10 Footways of 1.5m are provided on both sides of the carriageway, separated from the carriageway intermittently by grassed verge, car parking and driveways. The route continues west on By The Wood with a slight downhill gradient and meets Upper Hitch at a simple priority junction. The route requires users to cross the junction, although there are no dropped kerbs or tactile paving provided (Image 2.18). The provision of these would be a simple solution to improve the accessibility of the route for all users.

Image 2.18: Upper Hitch junction

Source: Google Maps

2.2.11 The eastbound bus stop is located 30m west of Upper Hitch, and the westbound stop 70m west shown in Images 2.19 and 2.20 respectively. Both bus stops are equipped with flagpole and seating is provided for the westbound bus stop for people to stop and rest. There is no shelter or timetable information, the provision of which may encourage users to choose to take the bus.

Image 2.19 and Image 2.20: Bus stops on By The Wood

Source: Google Maps

2.2.12 The shared footway cycleway continues north from the junction with By The Wood up to Watford Rural Bridleway 031, this runs northeast towards Merry Hill and Bushey. The bridleway is a dirt path and is not paved but that is understandable given its nature and that it is surrounded by countryside.

Route 2- Appraisal

Table 2.2: Walking & Cycling Appraisal - Route 2

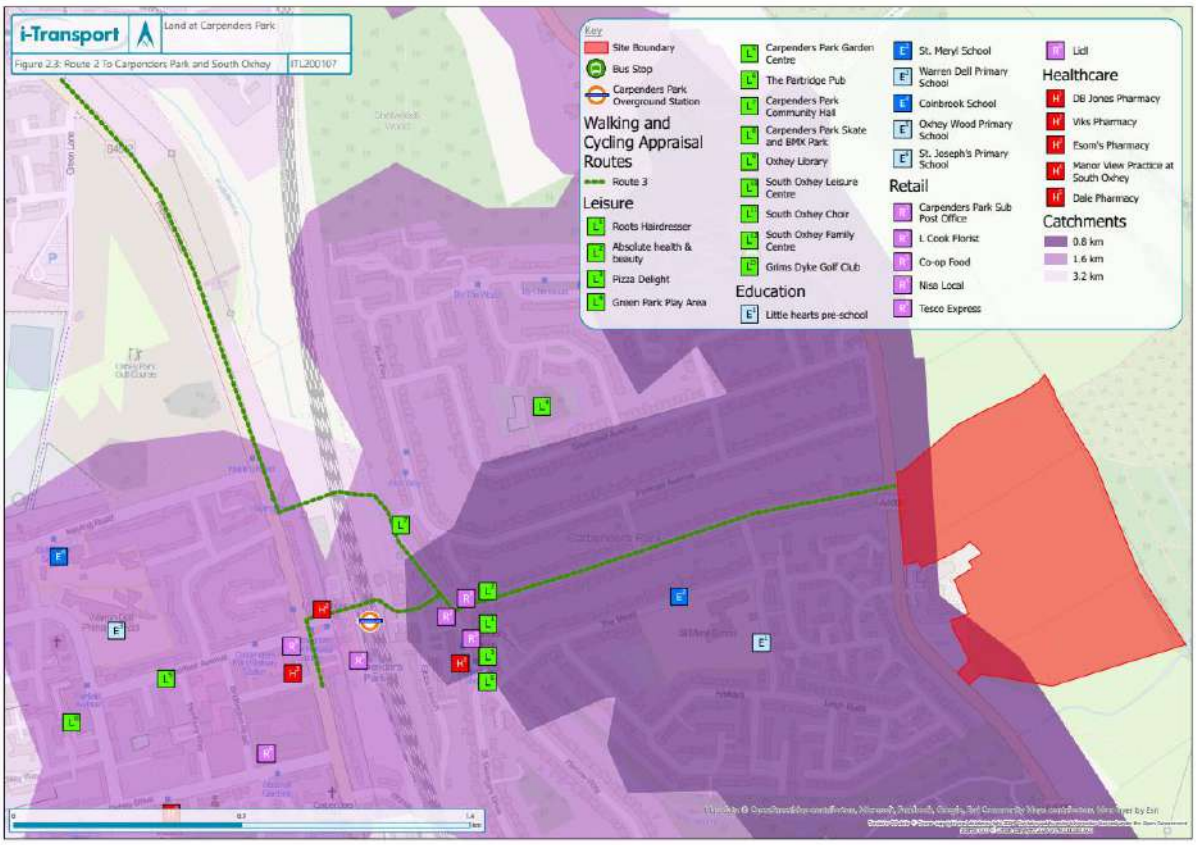
Appraisal Criteria	Comments
Accessibility	• There are short sections of narrow footway and shared footway / cycleway that could be widened. • There is no tactile paving or road markings to indicate shared footway / cycleway, although there is signage. • The route is mostly flat, with a slight gradient on By The Wood • There is a lack of dropped kerb and tactile paving provision at Upper Hitch. Potential Improvements • Dropped kerbs and tactile paving could be provided to improve the accessibility of the route at Upper Hitch and also indicate the beginning / end of the shared footway / cycleway.
Comfort	• Oxhey Lane has consistent traffic levels and speeds of 30-40mph which may deter pedestrians and cyclists, although By The Wood is quieter and residential in character. • There are short sections of narrow footway and shared footway / cycleway that need to be maintained or could be widened to improve comfort. • There are areas of tactile paving that is cracked and degraded and could be improved • The route is mostly street lit with passive surveillance on By The Wood Potential Improvements • Parts of the shared footway / cycleway on Oxhey Lane and By The Wood could be widened to ensure two-way passage and improve comfort. • Surfacing improvements could be implemented around the junction of By The Wood.
Directness	• The route is relatively direct, with crossings in appropriate locations and on pedestrian desire lines • There may be delays to crossing Oxhey Lane due to traffic flows
Attractiveness	• There is a bench at the bus stop to stop and rest. • Oxhey Lane and By The Wood are both well lit, with passive surveillance on By The Wood. • By The Wood is residential in character with low vehicle speeds and footways on both side of the road, street lighting and passive surveillance, street trees and grassed verges.
Cohesion	• There is signage indicating routes to Carpenders Park and Delta Gain, and also signage for the shared footway / cycleway, although there is no signage to the bus stops • The route is easy to navigate.
Environment	• The route crosses Oxhey Lane which has reasonable traffic volumes and speeds. • By the Wood is a residential area with lower speeds and segregation from the carriageway by grassed verge, with street trees and green spaces.

2.3 Route 3 – To Carpenders Park Station and South Oxhey

Walking & Cycling Route: To Carpenders Park Overground Station via Carpenders Avenue and Delta Gain

2.3.1 This route connects the site to the nearest railway station (Carpenders Park Overground) and beyond into South Oxhey. The route is in shown in Figure 2.3. The distance to the station is circa 1km from the centre of the site.

Figure 2.3: Route 3 To Carpenders Park and South Oxhey



2.3.2 Given that this route involves overlap with Route 1 from the site origin down to Carpenders Avenue's junction with Foxleys, this appraisal will start from where the routes diverge at Foxleys.

2.3.3 Carpenders Avenue is a lightly trafficked residential street with 30mph speeds. As a result, it is safe and comfortable for on-carriageway cycling.

2.3.4 As discussed above, Foxleys has limited crossing provision at its junction with Carpenders Avenue. Once across, the footway is maintained at around 1.5-2.0m with approximately a 1m wide verge between the footway and the carriageway. The footway is in generally good condition and street lighting is maintained along the length of Carpenders Avenue.

2.3.5 Outside no. 50 Carpenders Avenue there is a reasonably mature tree within the verge, this provides shade and potentially a space to stop and take a moment out of the sun. Between Foxleys and Delta Gain, mature trees are placed approximately every 80m along the southern footway of Carpenders Avenue, providing frequent places of shade. Along the northern footway there are also trees, but these are far less frequent.

Image 2.21 and Image 2.22: Mature Trees along Carpenders Avenue

Source: Google Maps

2.3.6 Carpenders Avenue has a gentle downward gradient as it heads away from the site, there are frequent vehicle driveways along the route, all with dropped kerbs. Between Nos. 88 and 90 there is a public footpath cut through to The Mead, it is approximately 3m wide and has a dog foul bin where it meets Carpenders Avenue. To prevent the use of the footpath by powered 2-wheelers a fence is placed on Carpenders Avenue in front of the access. The placement of the fence allows for enough space for pedestrians to walk either side comfortably.

Image 2.23 Public Footpath Entrance

2.3.7 Opposite this public footpath is a junction with an unnamed road that connects Carpenders Avenue to Penrose Avenue. The crossing point has a dropped kerb but no tactile paving.

2.3.8 Between the footpath and No. 128 Carpenders Avenue remains very similar in character with verge and footway being consistent widths and quality. West of No. 128, however, the downward gradient of the road starts to become steeper. There is a small bench to act as a rest point for pedestrians.

Image 2.24: Rest Bench

Source: Google Maps

2.3.9 The route continues downhill until Carpenders Avenue reaches its junction with Delta Gain and the road levels out. The junction is in the form of a mini roundabout. The footway widens considerably on approach to the junction and there is cycle parking present on the southern footway to serve the local shops.

2.3.10 All arms of the junction have uncontrolled crossings. Carpenders Avenue has a refuge island to assist with crossing (see Image 2.25). Delta Gain's southern arm has a raised crossing point to slow vehicles down on approach and to make it easier for pedestrians to cross. The northern arm of Delta Gain (see Image 2.26) does not have either of these features which is unfortunate as it is on the main desire line to the station. Therefore, there is potential for the crossing point to be upgraded. All crossings do have dropped kerbs and correctly laid tactile paving though.

Image 2.25: Carpenders Avenue Crossing Point

Source: Google Maps

Image 2.26: Delta Gain Northern Crossing Point

Source: Google Maps

2.3.11 North of the junction the routes turns into Gibbs Couch, footways widths vary considerably in this area with some parts having 1.0m wide and other having 2m+. Grass verge remains consistent though and serves as a buffer between the footway and on-street parking.

2.3.12 The crossing points along Gibbs Couch are all without tactile paving but do have dropped kerbs. The crossing points in the area could be upgraded so that they feature tactile paving and anti-skid surfacing to help guide partially sighted residents across the crossing point placed on a bend.

Image 2.27: Gibbs Couch Crossing Point

Source: Google Maps

2.3.13 At the western end is the approach to the station which is lit with streetlights and is a shared surface between cyclists and pedestrians. It is approximately 3m wide and leads directly into Carpenders Park Overground Station which is housed within the railway underpass.

Image 2.28: Station Approach

Source: Google Maps

2.3.14 The underpass is well lit with lights overhead throughout its entire length. The footway is of variable quality within the underpass and outside, with a number of uneven patches that impede movement for those less able.

Image 2.29: Station Entrance and Underpass

Source: Vipauk.org

2.3.15 The western side of the underpass leads directly into South Oxhey local centre, this can be accessed by a set of stairs or via a ramp. Both lead into a parade of shops and transport hub containing cycle stands, taxi rank, bus stops.

2.3.16 The area is permeable with carriageway and footway being flush with each other, appropriate tactile paving is used throughout with blister paving at crossing points and corduroy paving being used at the edge of footways. There are a number of trees providing shade for the area and a wide array of benches to rest at. The area is on a slight incline, but it is not too severe.

Image 2.30: Western Station approach (looking east)

Source: Google Maps

Image 2.31: Western Station Approach (looking west)

Source: Google Maps

2.3.17 From here, residents will be able to access the facilities within South Oxhey that in all directions.

2.3.18 For cyclists looking to head north towards Watford, the most direct route is to continue north along Delta Gain, another 30mph road. As Delta Gain turns towards Alva Way there is an access to Watford Rural Bridleway 017, this is a paved track that runs under the railway line onto Prestwick Road which has a segregated cycle track heading north until it meets Green Lane, where cyclists are expected to rejoin the carriageway.

Route 3 – Appraisal

Table 2.3: Walking & Cycling Appraisal - Route 3

Appraisal Criteria	Comments
Accessibility	• There are short sections of narrow footway that could be widened. • There are gradient changes on Oxhey Lane and Carpenders Avenue, Carpenders Avenue, especially as it approaches its junction with Delta Gain. • There is a lack of tactile paving provision at minor junctions such as Foxleys and The Mead. • All natural crossing points have dropped kerbs. • Footways could be made wider into grass verge in places. Potential Improvements • Tactile paving along Carpenders Avenue and Gibbs Couch could be provided to improve the accessibility of the route. • The footway on Gibbs Couch could be made wider in places.
Comfort	• Oxhey Lane has a consistent level of traffic with speeds up to 40mph which reduces feelings of comfort. Carpenders Avenue and surrounding streets are residential in nature which is more comfortable. • There are short sections of narrow footway that could be widened to improve comfort. • The footway is in generally good condition. • There is no signalised pedestrian crossing on Oxhey Lane • The station is within an accessible walking distance • The route is street lit with passive surveillance. • There are frequent shaded rest stops throughout the route. Potential Improvements • The northern Delta Gain crossing point could be upgraded to be give implicit priority to pedestrians to improve safety and comfort
Directness	• There is one uncontrolled pedestrian crossing on Oxhey Lane which would not necessarily serve future pedestrian desire lines. • The route is direct as possible, being essentially a straight-line down Carpenders Avenue from the site access. Potential Improvements • There is a lack of direct pedestrian crossing on Oxhey Lane. The provision of a signalised pedestrian crossing on Oxhey Lane would be required, in line with pedestrian desire lines down Carpenders Avenue.
Attractiveness	• There is a lack of signalised pedestrian crossing location on Oxhey Lane. • Oxhey Lane has consistent traffic flows and speeds are between 30-40mph, which may put some users from walking or cycling. • Carpenders Avenue is residential in character with low vehicle speeds and footways on both side of the road, street lighting and passive surveillance. Potential Improvements • A controlled pedestrian crossing should be provided to provide a safe crossing location.
Cohesion	• Carpenders Park station and local centre are both signposted at the junction of Oxhey Lane / Carpenders Avenue.
Environment	• The route crosses Oxhey Lane which has reasonable traffic volumes and speeds • Carpenders Avenue and Gibbs Couch are quieter residential roads with lower speeds and segregation from the carriageway by grassed verge. • The junction around Delta Gain is quite a busy junction with regular activity. • Street trees providing shade a frequent along Carpenders Avenue.

APPENDIX C. STAGE 1 ROAD SAFETY AUDIT & DESIGNERS RESPONSE

i-Transport LLP
33 Queen Street, London, EC4R 1AP

Tel: 0204 531 3660

Land at Carpenders Park: Designers' Response to RSA

Ref: ITL200107-005 TN
Date: 29 April 2025

SECTION 1 Introduction

1.1 The Stage 1 Road Safety Audit *(report ref: 250414_J190530_Watford_RSA1)* prepared by Grange Transport Consulting is provided at **Appendix A**.

1.2 This document is the Design Organisation Response Report.

1.3 Updated drawings to address audit comments and the Designer's Response are provided at **Appendix B**. Additional drawings showing lane capacity and swept path analysis of the site access junction is provided at **Appendix C**.

PREPARED BY:	
Name:	Ronan Wilson – Principal Consultant
Organisation:	i-Transport LLP
Date:	29 April 2025

SECTION 2 Design Organisation Response Report

2.1 A4008 Oxhey Lane / Carpenders Avenue site access junction

2.1.1	PROBLEM 1
Location:	Junction approaches – northbound and southbound
Summary:	Risk of overshooting the stop line
The north and south bound approaches to the junction are straight and on inclines. In addition, there are trees located relatively close to the carriageway. The proposals only indicate primary traffic heads for the signal-controlled junction. This may cause approaching traffic not to detect the single traffic heads if obscured by vegetation or high-sided vehicles. This may result in failure to stop/slow down and subsequent collisions with preceding or opposing traffic.	
RECOMMENDATION:	
Provide additional / secondary signal heads	
DESIGN ORGANISATION RESPONSE:	
The problem and recommendation are accepted, although an alternative solution is to provide advanced warning signage to indicate the presence of traffic light signals 50m north/south of the junction. The drawings have been updated and are shown at **Appendix B**. The specific location of signage can be dealt with at detailed design stage.	

2.1.2	PROBLEM 2
Location:	Junction – right turn facilities
Summary:	Risk of side-swipe collisions
The arrangement of the right turning facilities at the junction appears to be insufficient to allow vehicles to carry out right-turn manoeuvres without impeding right-turning traffic in the opposite direction. This may result in side-swipe type collisions between turning vehicles.	
RECOMMENDATION:	
Increase the separation of the site access and Carpenders Avenue arms.	
DESIGN ORGANISATION RESPONSE:	
There is limited scope to increase the separation of the site access and Carpenders Avenue within the existing constraints. However, swept path analysis is provided at **Appendix C** and demonstrates that there is sufficient space to allow vehicles to carry out right-turn manoeuvres in opposite directions.	

2.1.3	PROBLEM 3
Location:	Junction – right turn facilities
Summary:	Risk of rear-end shunt collisions
The arrangement of the right turning facilities at the junction appears to be insufficient to allow vehicles to carry out right-turn manoeuvres without impeding right-turning traffic in the opposite direction. This may cause additional queuing to form, which may result in rear-end shunt type collisions with through traffic.	
RECOMMENDATION:	
Increase the separation of the site access and Carpenders Avenue arms.	
DESIGN ORGANISATION RESPONSE:	
There is limited scope to increase the separation of the site access and Carpenders Avenue within the existing constraints. However, swept path analysis is provided at **Appendix C** and demonstrates that there is sufficient space to allow vehicles to carry out right-turn manoeuvres in opposing directions.	

2.1.4	PROBLEM 4
Location:	Junction – right turn facilities
Summary:	Risk of obstruction of through lanes
The right turning queuing lane appears to be insufficient to accommodate the expected levels of turning vehicles. This may cause turning vehicles to obstruct the through lane. This may result in rear-end shunt type collisions for southbound vehicles.	
RECOMMENDATION:	
Review capacity of right turn lane and extend queuing capacity if necessary.	
DESIGN ORGANISATION RESPONSE:	
Drawing ITL200107-SK-001 at **Appendix C** shows that three vehicles can be stored within the right turn into the site facilities, and five vehicles can be stored with the right-turn into Carpenders Avenue. The number of right-turning vehicles expected is as follows: <u>Right-turn into the site:</u> • AM – 15 vehicles per hour, average demand per cycle = 0.25 • PM – 36 vehicles per hour, average demand per cycle = 0.6 <u>Right-turn into Carpenders Avenue:</u> • AM – 79 vehicles per hour, average demand per cycle =1.3 • PM – 122 vehicles per hour, average demand per cycle = 2.0 This demonstrates that there is more than sufficient storage capacity within the proposed design to accommodate the expected level of traffic turning right into the site access or right into Carpenders Avenue each cycle.	

2.1.5	PROBLEM 5
Location:	Junction
Summary:	Risk of side-swipe collisions
The stages within the LinSig outputs indicate that there will be simultaneous right turn movements allowed at the junction. There is no swept path analysis provided to demonstrate that safe vehicle movements can be undertaken at the proposed junction. This may result in side-swipe type collisions between right-turning vehicles.	
RECOMMENDATION:	
Carry out swept path analysis to demonstrate all permitted vehicle movements at the junction can be carried out safely. Also see Problem 2.	
DESIGN ORGANISATION RESPONSE:	
The problem and recommendation are accepted. The updated swept path analysis, at **Appendix C**, illustrates that safe right-turn movements can be undertaken at the proposed junction.	

2.1.6	PROBLEM 6
Location:	Opposite the Cottage
Summary:	Risk of pedestrian falls
There is an existing strip of tarmac opposite The Cottage, between verges, and leading to a driveway. When the new controlled pedestrian crossing (E-W) is installed, the tarmac strip may be confused by visually impaired pedestrians (VIPs) as leading to a crossing point to access the northern side of Carpenders Avenue. This may result in VIPs falling in the carriageway when encountering full-height kerbs.	
RECOMMENDATION:	
It is recommended to remove the tarmac strip.	
DESIGN ORGANISATION RESPONSE:	
The problem and recommendation are accepted. The drawing has been updated to show that the tarmac strip is to be removed, the detail of which can be dealt with at detailed design stage.	

2.1.7	PROBLEM 7
Location:	Oxhey Lane – eastern side
Summary:	Risk of pedestrian collisions
It is proposed to widen the existing eastern footway along Oxhey Lane. There are existing street lighting columns at the edge of the footway. This will cause the street lighting to be positioned in the middle of the amended footway, which may result in VIPs colliding with the street light if they are tapping the back of footway for guidance.	

RECOMMENDATION:
Relocate street light to the back of the amended footway.
DESIGN ORGANISATION RESPONSE:
The problem and recommendation are accepted. The updated drawing illustrates the location of street lighting at the back of the footway.

2.2 Emergency Access

2.2.1	**PROBLEM 8**
Location:	Emergency access
Summary:	Risk of overshoot
There is currently a significant level difference between the site and the adjacent footway along Oxhey Lane. This may cause the gradient of the emergency access (predominantly for cycle and pedestrian use) to be too steep. This may result in cycles and pedestrians exiting the site to fail to stop on the footway and fall in the carriageway	
RECOMMENDATION:	
Ensure appropriate gradient is provided for the access	
DESIGN ORGANISATION RESPONSE:	
The problem and recommendation are accepted and can be dealt with at detailed design stage.	

2.2.2	**PROBLEM 9**
Location:	Emergency access
Summary:	Risk of collisions with cyclists
It is proposed that the emergency access will be used by cyclists. There is no hazard paving proposed at the interface to inform VIPs entering from Oxhey Lane, that there may be cyclists present. This may result in collisions between VIPs and cyclists.	
RECOMMENDATION:	
Provide hazard paving at the interface of surfaces	
DESIGN ORGANISATION RESPONSE:	
The problem and recommendation are accepted. The updated drawing, at **Appendix B** illustrates the location of corduroy paving on either side of the emergency access.	

2.2.3	PROBLEM 10
Location:	Emergency access
Summary:	Risk of cyclist falls
There appears to be a gully in close proximity to the emergency access. The access will have a dropped kerb and will be used by cyclists. This may cause cyclists to ride onto the carriageway, which may result in getting trapped in the gully and falling in the carriageway	
RECOMMENDATION:	
Ensure gully is not in line with the emergency access or provide cycle-friendly grating.	
DESIGN ORGANISATION RESPONSE:	
The identified gully located circa 15m north of the proposed emergency access, as demonstrated in the updated drawing at Appendix B. Should the access move north and cycle-friendly grating be required, this can be dealt with at detailed design stage.	

2.2.3	ADDITIONAL COMMENTS
Location:	Junction – right turn facilities
Summary:	Junction staging/ phasing
The LinSig output includes the stage diagram. This indicates that Phase F does not have any green time and that the right-turners are controlled by Phase E.	
RECOMMENDATION:	
N/A	
DESIGN ORGANISATION RESPONSE:	
The additional comment is noted. Phase F runs concurrently with the associated Phase E (southern arm ahead and left). Phase F therefore has an average green time of 27s every minute. The low number of vehicles right turning into the site (0.25 and 0.6 per cycle in the AM and PM peak respectively) has the opportunity to gap seek for the duration of the green time or may clear the junction during the proceeding 7 second intergreen every 60 seconds.	

APPENDIX A. STAGE 1 RSA

LAND AT CARPENDERS PARK, OXHEY LANE, WATFORD

Stage 1 Road Safety Audit

J190530

Burlington Property Group

20th May 2025

GR 119
Grange Transport Consulting

Tel: +44 (0)7912 160 303 Email: info@grange-transport.co.uk Web:www.grange-transport.co.uk
Grange Transport Consulting Ltd registered in England and Wales No.13643298
Registered office: 119 Grange Road, Banbury, Oxfordshire, OX16 9AT

Land at Carpenders Park, Oxhey Lane, Watford

Stage 1 Road Safety Audit

J190530

May 2025

Client: i-Transport LLP

Scheme:	Land at Carpenders Park, Oxhey Lane, Watford		
Issue Date:	20.05.25		
Document reference and Revision:	250520_J190530_Watford_RSA1_Final.docx Rev 1.0		
Prepared by:	Wing Lee	Date:	14/04/25
Approved by:	Ian Medd	Date:	14/04/25
Status:	For Issue	Date:	20/05/25

CONTENTS

1. Introduction

1.1 General

1.1.1 This report results from a Stage 1 Road Safety Audit (RSA) carried out on Friday 11 April 2025. The audit was undertaken on behalf of Burlington Property Group, in regard to the site access arrangements for a residential development from the A4008 Oxhey Lane in Carpenders Park, Watford.

1.1.2 The audit has been requested by Ronan Wilson of i-Transport LLP. An Audit Brief has been supplied. The Audit Team were approved by Ronan Wilson of i-Transport LLP.

1.1.3 The Road Safety Audit team comprised of the following individuals:

Wing Lee BEng(Hons), PGCert, MSoRSA, HE Cert Comp, MCIHT, MIHE
Audit Team Leader

Ian Medd MCIHT, FSoRSA
Audit Team Member

1.1.4 A site visit was undertaken by the Audit Team on Wednesday 19 March 2025, between the hours of 13:00 and 14:30. The weather was sunny and the road surface was dry. Traffic passing the site was moderate. The level of pedestrians passing the site was minimal, whilst no cyclists were observed during site visit. The Audit Team observed two separate incidents of injudicious manouevres by passing vehicles.

1.2 Site Location

1.2.1 The site comprises of the sections of the A4008 carriageway, in the vicinity of the junction of the Oxhey Lane / Carpenders Avenue. The site is located at the eastern extent of Carpenders Park, Hertfordshire. A new access road will form a fourth arm of the junction to serve the residential development. A site location plan is shown at **Appendix A**.

1.3 Strategic Decisions

1.3.1 The Audit Team has not been advised of any strategic decisions made by the planning or highway authorities in relation to the development scheme.

1.4 Highway description

1.4.1 Carpenders Avenue is a single lane carriageway, subject to a 30mph speed limit. It has a limited time 5T weight restriction in place along the residential road, and provides a direct route towards Capenders Park overground station. It has a width of approximately 7.5 metres, with footways and street lighting on both sides of the road. There are double yellow line loading restrictions in place at the eastern extent of Carpenders Avenue.

1.4.2 The A4008 Oxhey Lane is a single lane carriageway, of approximate 8.8 metres width. In the vicinity of the site there is central hatching and an existing ghost island junction with Carpenders Avenue. Oxhey Lane is subject to a 40mph speed limit. Footways and street

lighting are provided on both sides of the road, however the western footway terminates north of the Carpenders Avenue junction.

1.4.3 The horizontal alignment of Carpenders Avenue and Oxhey Lane are straight. The vertical alignment of Carpenders Avenue has a gentle an incline in the eastbound direction. The vertical alignment of Oxhey Lane has an incline in the southbound direction, with a crest in the vicinity of its junction with Highfield.

1.4.4 Collision history data, obtained from HCC, has been provided to the Audit Team. This indicates that one collision was recorded in the vicinity of the site during the 5-year period between 01/11/19 and 31/10/24. The one Serious severity collision occurred at the Oxhey Lane/Carpenders Avenue junction, involving rear-end-shunt collision.

1.5 Previous Road Safety Audits

1.5.1 The Audit Team has not been made aware of any previous Road Safety Audits carried out for the junction proposals.

1.6 Scheme proposals

1.6.1 The proposals submitted for this Stage 1 Road Safety Audit relate only to the following junction arrangement / site access works in association with the 250 residential dwelling and 60 unit care development:

- Amended junction arrangement/operation;
- New site access, kerbing and earthworks;
- Amended footways;
- New controlled pedestrian crossing facilities;
- New and amended road markings;
- Forward visibility, intervisibility zones;
- Swept path analysis; and
- Emergency access point.

1.7 Departures from Standards

1.7.1 The Audit Team has not been informed of any departures from standards relating to the designs submitted for audit.

1.8 Road Safety Audit

1.8.1 The Road Safety Audit has been carried out in accordance with the principals of the National Highways document, as described in the Design Manuals for Roads and Bridges (DMRB) standard - GG119 Road Safety Audit.

1.8.2 The Audit Team has examined and reported only on the road safety implications of the scheme as presented by i-Transport LLP, and has not examined / verified the compliance of the designs to any other criteria. The Audit Team may occasionally refer to design standards without touching on technical audit to clearly explain a safety problem or the recommendation to resolve a problem.

1.8.3 The Road Safety Audit includes a desktop study where all documents provided by the Design Team have been reviewed. A list of the documents and drawings submitted for this Stage 1 Road Safety Audit can be found at **Appendix B**.

1.8.4 The submitted design drawings have been annotated to show the location of problems identified during this Stage 1 Road Safety Audit, which are shown at **Appendix C**.

1.8.5 Recommendations offered within this report should not be regarded as prescriptive. There may be equally satisfactory or superior alternative solutions to the identified problems. The Audit Team will be pleased to consider any alternatives if required.

2. Problems identified from this audit

2.1 A4008 Oxhey Lane / Carpenders Avenue junction

2.1.1 The following provides details of the problems identified during this Stage 1 Road Safety Audit.

Problem 1	
Location	Junction approaches – northbound and southbound
Summary	Risk of overshooting the stop line

The north and south bound approaches to the junction are straight and on inclines. In addition, there are trees located relatively close to the carriageway. The proposals only indicate primary traffic heads for the signal-controlled junction. This may cause approaching traffic not to detect the single traffic heads if obscured by vegetation or high-sided vehicles. This may result in failure to stop/slow down and subsequent collisions with preceding or opposing traffic.

Recommendation	Provide additional / secondary signal heads.

Problem 2	
Location	Junction – right turn facilities
Summary	Risk of side-swipe collisions
The arrangement of the right turning facilities at the junction appears to be insufficient to allow vehicles to carry out right-turn manoeuvres without impeding right-turning traffic in the opposite direction. This may result in side-swipe type collisions between turning vehicles.	
Recommendation	Increase the separation of the site access and Carpenders Avenue arms.

Problem 3	
Location	Junction – right turn facilities
Summary	Risk of rear-end shunt collisions
The arrangement of the right turning facilities at the junction appears to be insufficient to allow vehicles to carry out right-turn manoeuvres without impeding right-turning traffic in the opposite direction. This may cause additional queuing to form, which may result in rear-end shunt type collisions with through traffic.	
Recommendation	Increase the separation of the site access and Carpenders Avenue arms.

Problem 4	
Location	Junction – right turn facilities
Summary	Risk of obstruction of through lanes
The right turning queuing lane appears to be insufficient to accommodate the expected levels of turning vehicles. This may cause turning vehicles to obstruct the through lane. This may result in rear-end shunt type collisions for southbound vehicles.	
Recommendation	Review capacity of right turn lane and extend queuing capacity if necessary.

Problem 5	
Location	Junction
Summary	Risk of side-swipe collisions
The stages within the LinSig outputs indicate that there will be simultaneous right turn movements allowed at the junction. There is no swept path analysis provide to demonstrate that safe vehicle movements can be undertaken at the proposed junction. This may result in side-swipe type collisions between right-turning vehicles.	
Recommendation	Carry out swept path analysis to demonstrate all permitted vehicle movements at the junction can be carried out safely. Also see Problem 2.

Problem 6	
Location	Opposite The Cottage
Summary	Risk of pedestrian falls

There is an existing strip of tarmac opposite The Cottage, between verges, and leading to a driveway. When the new controlled pedestrian crossing (E-W) is installed, the tarmac strip may be confused by visually impaired pedestrians (VIPs) as leading to a crossing point to access the northern side of Carpenders Avenue. This may result in VIPs falling in the carriageway when encountering full-height kerbs.

Recommendation	Remove the tarmac strip.

Problem 7	
Location	Oxhey Lane – eastern side
Summary	Risk of pedestrian collisions
It is proposed to widen the existing eastern footway along Oxhey Lane. There are existing street lighting columns at the edge of the footway. This will cause the street lighting to be positioned in the middle of the amended footway, which may result in VIPs colliding with the street light if they are tapping the back of footway for guidance.	
Recommendation	Relocate street light to the back of the amended footway.

2.2 Emergency Access

2.2.1 The following provides details of the problems identified during this Stage 1 Road Safety Audit.

Problem 8	
Location	Emergency access
Summary	Risk of overshoot

There is currently a significant level difference between the site and the adjacent footway along Oxhey Lane. This may cause the gradient of the emergency access (predominantly for cycle and pedestrian use) to be too steep. This may result in cycles and pedestrians exiting the site to fail to stop on the footway and fall in the carriageway.

Recommendation	Ensure appropriate gradient is provided for the access.

Problem 9	
Location	Emergency access
Summary	Risk of collisions with cyclists

It is proposed that the emergency access will be used by cyclists. There is no hazard paving proposed at the interface to inform VIPs entering from Oxhey Lane, that there may be cyclists present. This may result in collisions between VIPs and cyclists.

Recommendation	Provide hazard paving at the interface of surfaces.

Problem 10	
Location	Emergency access
Summary	Risk of cyclist falls

There appears to be a gully in close proximity to the emergency access. The access will have a dropped kerb and will be used by cyclists. This may cause cyclists to ride onto the carriageway, which may result in getting trapped in the gully and falling in the carriageway.

Recommendation	Ensure gully is not in line with the emergency access or provide cycle-friendly grating.

3. Audit Team Statement

3.1.1 We certify that the drawings listed at **Appendix B** have been examined, and that this Audit has been carried out in accordance with the principles and requirements of GG119, with the sole purpose of identifying road safety matters to be addressed in order to improve the safety of the scheme.

Road Safety Audit Team Leader

Signed: 

Name: Wing Lee

Date: 20.05.25

Road Safety Audit Team Member

Signed: 

Name: Ian Medd

Date: 20.05.25

4. Comments

4.1.1 This section of the report provides the commentry on issues identifed for the scheme proposals, that are considered by the Audit Team not to be part of the Stage 1 Road Safety Audit.

4.1.2 Whist it is appreciated that the junction layouts are not detailed, it is noted that the proposed Puffin crossing facilities are shown with insufficient poles to support the pedestrian controllers.

4.1.3 The LinSig output includes the stage diagram. This indicates that Phase F does not have any green time and that the right-turners are controlled by Phase E.

4.1.4 In the vicinity of the emergency access point the footway has a build-up of detritus, which narrows the effective width for pedestrians. It would be prudent to clear away the detritus to enable the full width of footway to be useable.

4.1.5 There have been no plans shown for the pedestrian access point immediately north of Carpenders Park Care Home. However, it is noted that this is in close proximity to a traffic island, which may be confused for a pedestrian refuge by pedestrians wishing to access the western side of Oxhey Lane.

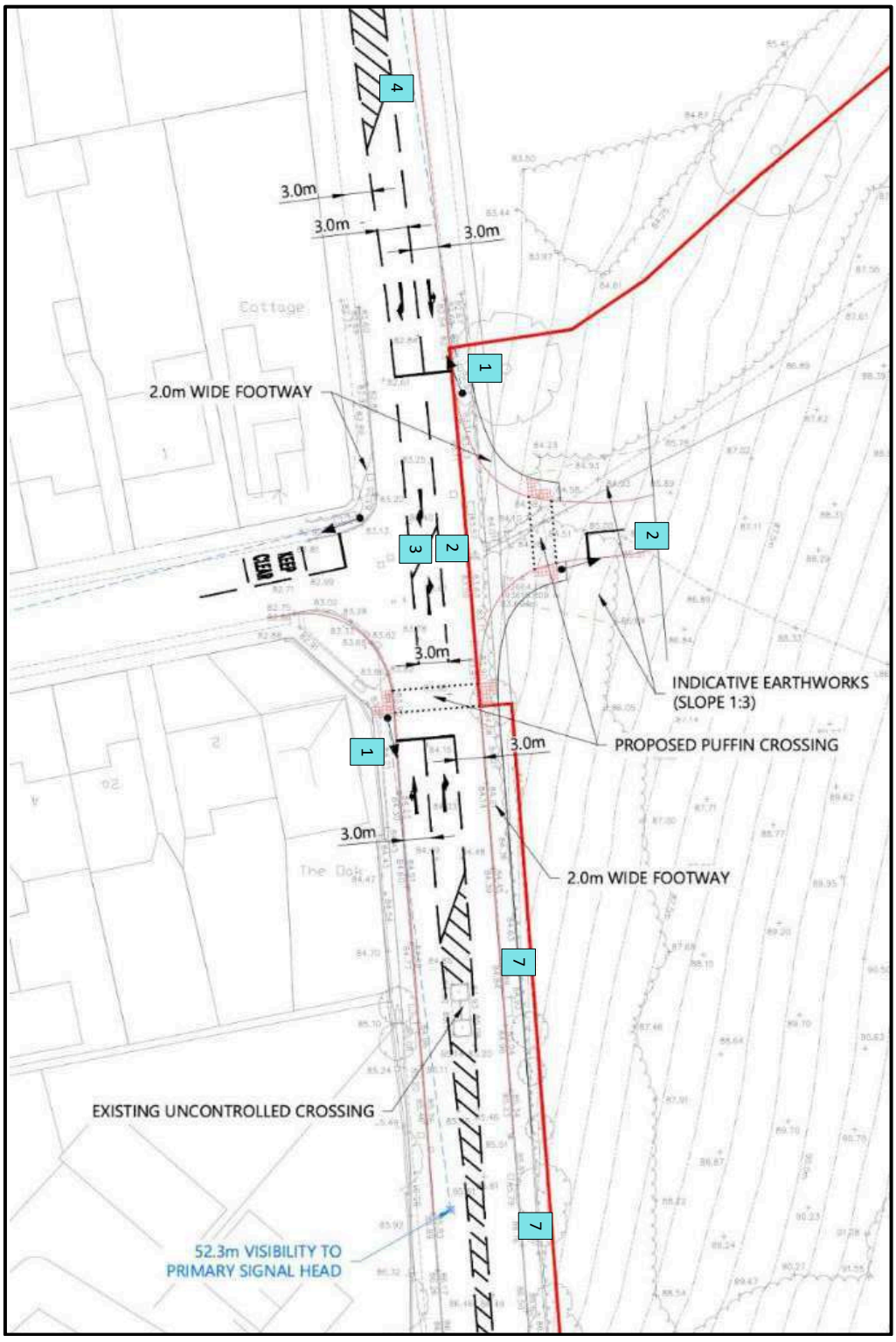
4.1.6 In addition, the pedestrian access point is close to a low kerb, which may encourage pedestrians to cross Oxhey Lane in this location, where limited visibility is available due to the crest of a hill.

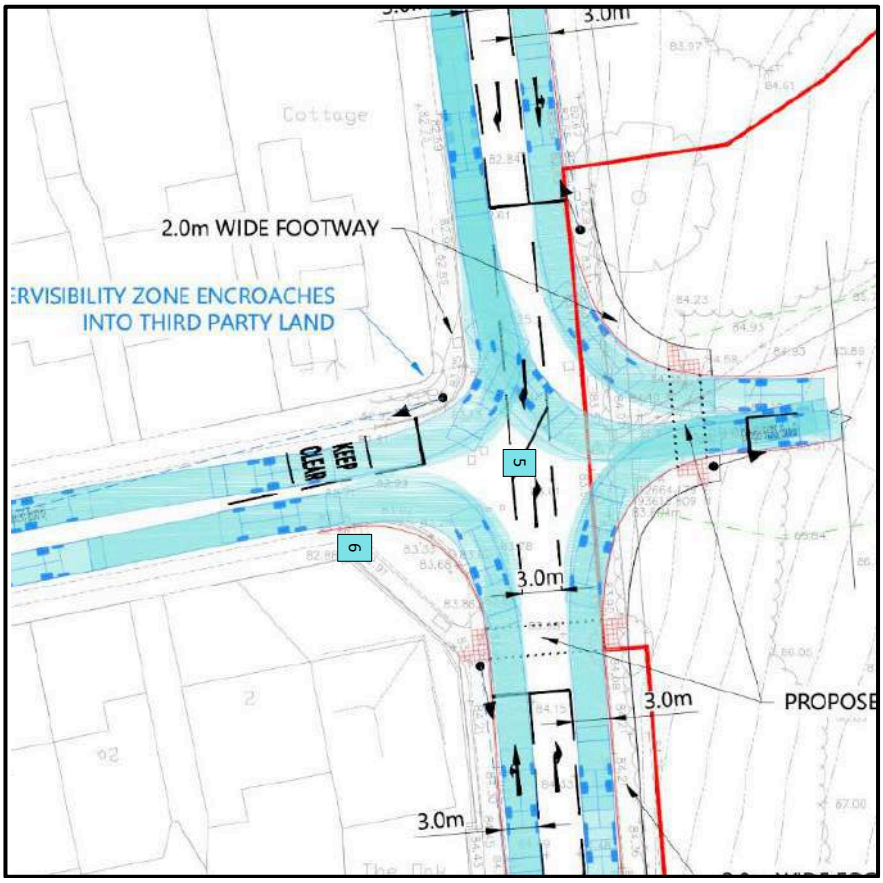
Appendix A Site Location Plan

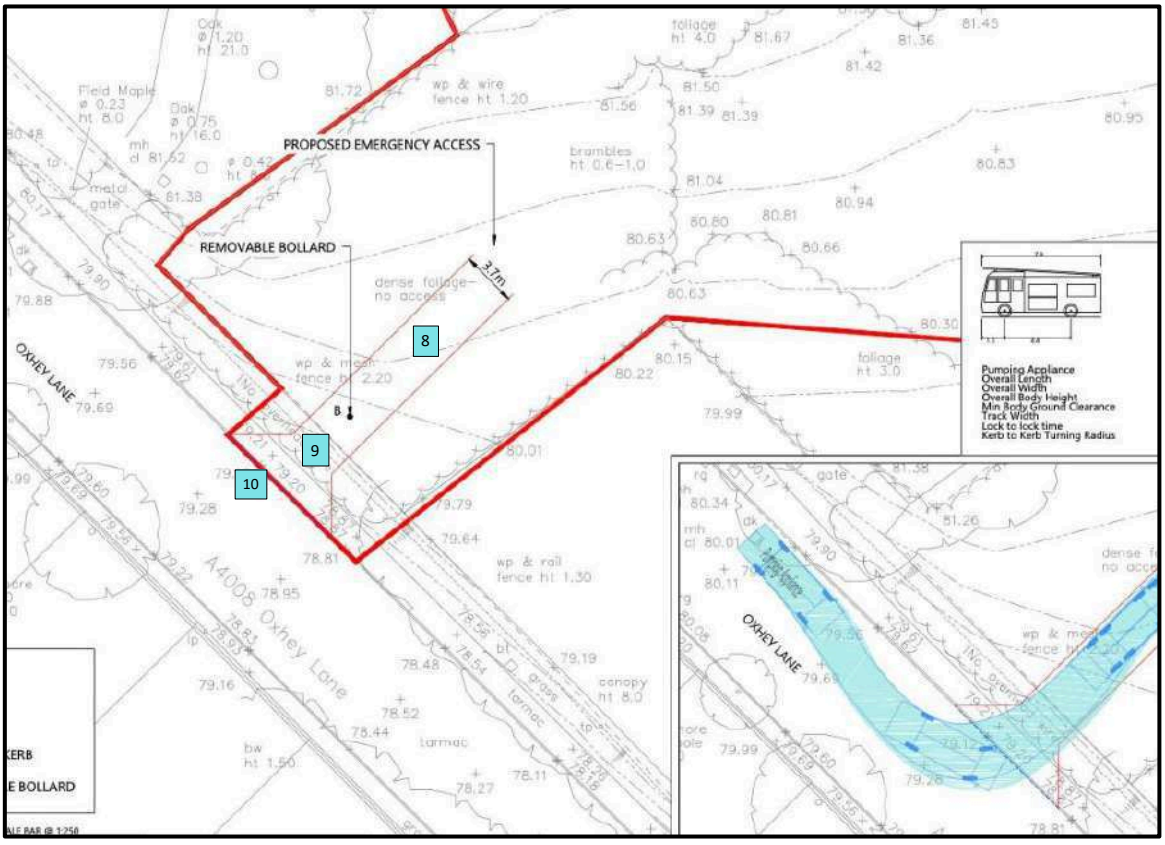
Appendix B Documents provided for Audit

- ITL200107-GA-002 Rev C
  Proposed Site Access Arrangement – Signalised Junction
- ITL200107-GA-005 Rev A
  Proposed Signalised Crossing – Vertical Visibility
- ITL200107-GA-006 Rev B
  Potential Site Access Arrangement – Signalised Junction Swept Path Analysis
- ITL200107-GA-007 Rev A
  Emergency Access onto Oxhey Lane
- PH/RW/JL/ITL200107-004
  Road Safety Audit Brief – Proposed Oxhey Lane Access Junction (04/04/25)
- Figure 1.1
  Site Location Plan
- Traffic Flow, Forecast flows
- Collision history data
- Speed limits, Vehicle speeds
- LinSig outputs
  2030+Dev (AM &PM), 2030+Dev (Vision) (AM &PM)

Appendix C Problem Location Plan




3.0m
2.0m WIDE FOOTWAY
ERVISIBILITY ZONE ENCROACHES
INTO THIRD PARTY LAND
5
6
3.0m
3.0m
PROPOSE
3.0m


PROPOSED EMERGENCY ACCESS
REMOVABLE BOLLARD
3.7m
8
9
10
OXHEY LANE
A4008 Oxhey Lane
Pumping Appliance
Overall Length
Overall Width
Overall Body Height
Min Body Ground Clearance
Track Width
Lock to lock time
Kerb to Kerb Turning Radius

APPENDIX B. DRAWINGS

PROPOSED SIGN, DIAG. NO. 543
ON EXISTING LAMP COLUMN

LC

48m VISIBILITY TO
PRIMARY SIGNAL HEAD

3.0m

3.0m

3.0m

2.0m WIDE FOOTWAY

43m VISIBILITY TO
PRIMARY SIGNAL HEAD

KEEP CLEAR

3.0m

PROPOSED PUFFIN CROSSING

TARMAC STRIP TO BE REMOVED
AND CONVERTED TO VERGE

3.0m

3.0m

3.3m

2.0m WIDE FOOTWAY

LAMP COLUMN
TO BE RELOCATED

EXISTING UNCONTROLLED CROSSING

52.3m VISIBILITY TO
PRIMARY SIGNAL HEAD

PROPOSED SIGN, DIAG. NO. 543
(INDICATIVE LOCATION)

Cottage

The Oak

Stn B
512671.545 E
193520.623 N
87.396m

SCALE BAR @ 1:500

0 5 10 25 50

REV	DATE	BY	DESCRIPTION	CHK	APD
D	22.04.25	TA	DRAWING HAS BEEN AMENDED AFTER RSA COMMENTS	RW	PH
C	31.03.25	SH	ACCESS UPDATED	RW	PH
B	28.03.25	TA	SITE BOUNDARY HAS BEEN UPDATED	RW	PH
A	18.03.25	SH	PEDESTRIAN CROSSING UPDATED	RW	PH

i-Transport

33 Queen Street, London, EC4R 1AP Tel: 0204 531 3660

www.i-transport.co.uk

CLIENT: BURLINGTON PROPERTY GROUP

STATUS: FOR INFORMATION

TITLE: PROPOSED SITE ACCESS ARRANGEMENT - SIGNALISED JUNCTION

PROJECT: LAND AT CARPENDERS PARK

DRAWN:	CHECKED:	APPROVED:
SH	PH	PH
PROJECT No:	**SCALE @ A2:**	**DATE:**
ITL200107	1:500	12.11.24
DRAWING No:		**REV:**
ITL200107-GA-002		D

L:\PROJECTS\200000 SERIES\200107 - Land at Carpenders Park\Tech\Acad\i-Transport Drawings\Working Drawings\GA\ITL200107-GA-002D.dwg

EXISTING GULLY

PROPOSED EMERGENCY ACCESS

REMOVABLE BOLLARD

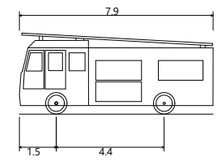
3.7m

PROPOSED CORDUROY PAVING

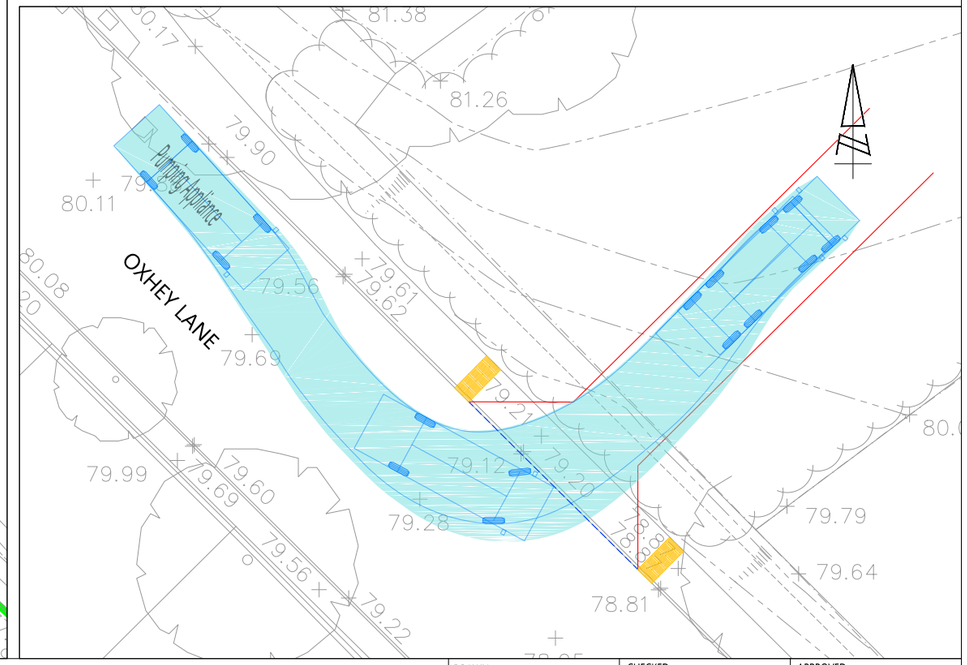
B

PROPOSED CORDUROY PAVING

OXHEY LANE



Pumping Appliance	
Overall Length	7.900m
Overall Width	2.500m
Overall Body Height	3.300m
Min Body Ground Clearance	0.350m
Track Width	2.500m
Lock to lock time	4.00s
Kerb to Kerb Turning Radius	7.750m



KEY:

- SITE BOUNDARY
- HIGHWAY BOUNDARY
- PROPOSED KERB
- PROPOSED DROPPED KERB
- B PROPOSED REMOVABLE BOLLARD
- PROPOSED CORDUROY PAVING

SCALE BAR @ 1:250

0 1 2 5 10 25

i-Transport
33 Queen Street, London, EC4R 1AP
Tel: 0204 531 3660
www.i-transport.co.uk

REV	DATE	BY	DESCRIPTION	CHK	APD
B	22.04.25	TA	DRAWING HAS BEEN AMENDED AFTER RSA COMMENTS	RW	PH
A	28.03.25	TA	SITE BOUNDARY HAS BEEN UPDATED	RW	PH

STATUS: FOR INFORMATION

TITLE: EMERGENCY ACCESS ONTO OXHEY LANE

PROJECT: LAND AT CARPENDERS PARK

CLIENT: BURLINGTON PROPERTY GROUP

DRAWN:	CHECKED:	APPROVED:
TA	RW	PH
PROJECT No:	SCALE @ A3:	DATE:
ITL200107	1:250	28.03.25
DRAWING No:		REV:
ITL200107-GA-007		B

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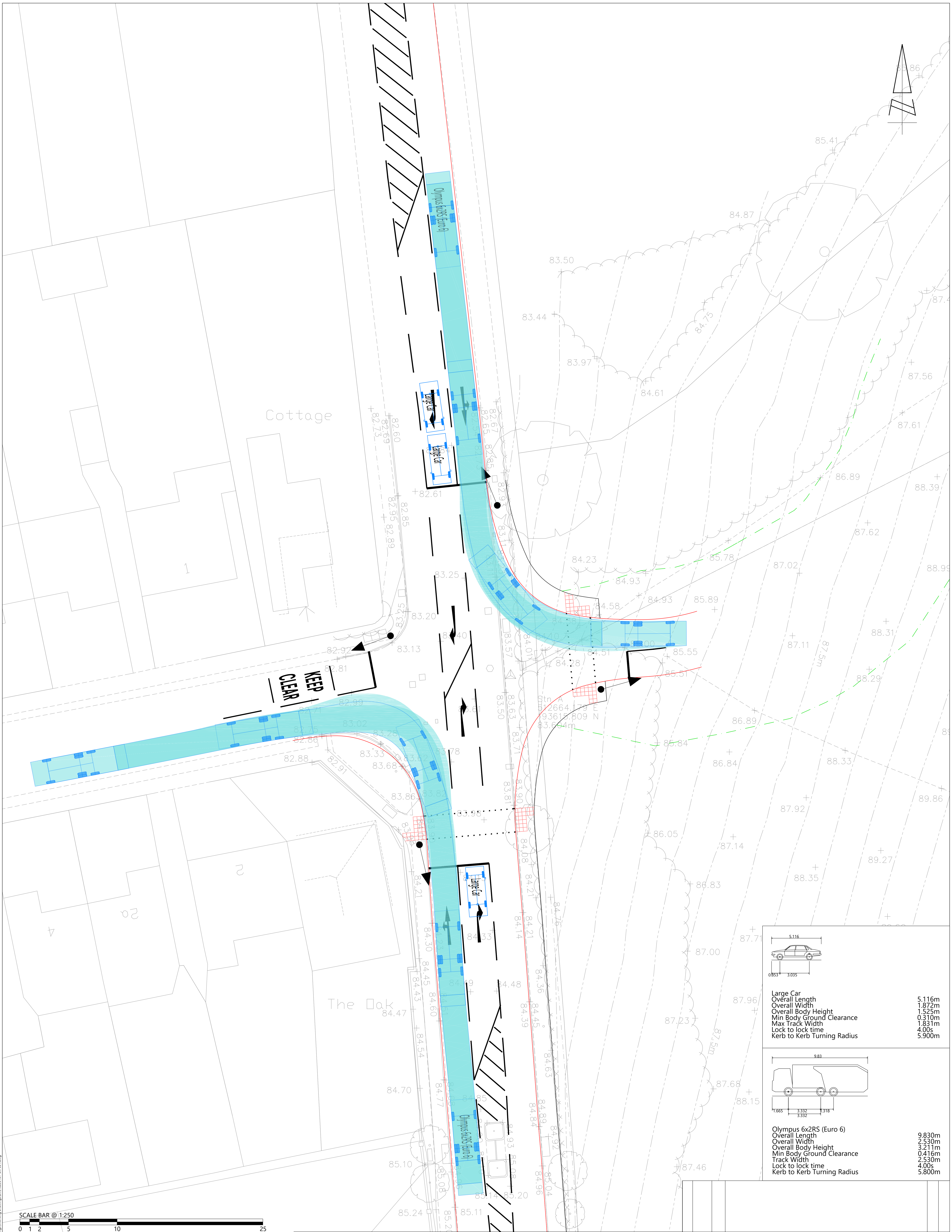
APPENDIX C. SWEPT PATH ANALYSIS



DRAWING ISSUED FOR FEASIBILITY CONSIDERATION AND PLANNING PURPOSES ONLY. DRAWING NOT TO BE USED FOR CONSTRUCTION. I-TRANSPORT LLP ACCEPT NO RESPONSIBILITY FOR ERRORS MADE BY OTHERS IN SCALING FROM THIS DRAWING. MEASUREMENTS SHOULD BE TAKEN FROM FIGURED DIMENSIONS ONLY. CDM REQUIREMENTS CONSIDERED AT FEASIBILITY STAGE ONLY. FURTHER CONSIDERATION REQUIRED BY DETAILED DESIGN TEAM.

L:\PROJECTS\200000 SERIES\200107 - Land at Carpenders Park\Tech\Acad\i-Transport Drawings\Working Drawings\SK\ITL200107-SK-001.dwg

i-Transport

33 Queen Street, London, EC4R 1AP Tel: 0204 531 3660

www.i-transport.co.uk

CLIENT: BURLINGTON PROPERTY GROUP

TITLE: SWEPT PATH ANALYSIS - CAPACITY OF RIGHT TURN LANES

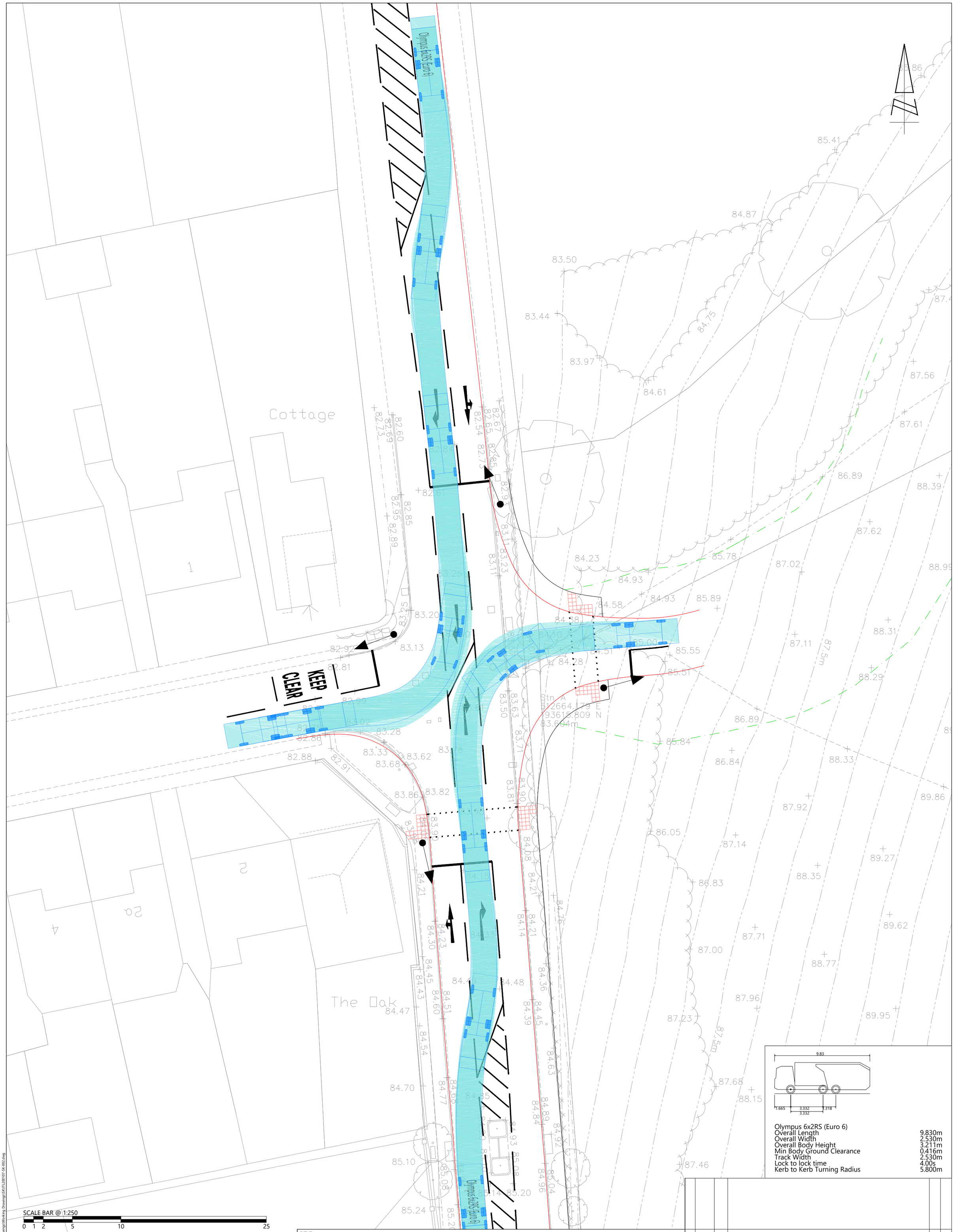
PROJECT: LAND AT CARPENDERS PARK

REV	DATE	BY	DESCRIPTION	CHK	APD

STATUS: FOR INFORMATION

DRAWN:	CHECKED:	APPROVED:
TA	PH	PH
PROJECT No: ITL200107	SCALE @ A2: 1:250	DATE: 22.04.25

DRAWING No: ITL200107-SK-001 REV: -



DRAWING ISSUED FOR FEASIBILITY CONSIDERATION AND PLANNING PURPOSES ONLY. DRAWING NOT TO BE USED FOR CONSTRUCTION. I-TRANSPORT LLP ACCEPT NO RESPONSIBILITY FOR ERRORS MADE BY OTHERS IN SCALING FROM THIS DRAWING. MEASUREMENTS SHOULD BE TAKEN FROM FIGURED DIMENSIONS ONLY. CDM REQUIREMENTS CONSIDERED AT FEASIBILITY STAGE ONLY. FURTHER CONSIDERATION REQUIRED BY DETAILED DESIGN TEAM.

i-Transport
33 Queen Street, London, EC4R 1AP Tel: 0204 531 3660
www.i-transport.co.uk

CLIENT: BURLINGTON PROPERTY GROUP

REV	DATE	BY	DESCRIPTION	CHK	APD

STATUS: FOR INFORMATION

TITLE: SWEPT PATH ANALYSIS - REFUSE VEHICLE RIGHT TURN

PROJECT: LAND AT CARPENDERS PARK

DRAWN:	CHECKED:	APPROVED:
TA	PH	PH
PROJECT No:	SCALE @ A2:	DATE:
ITL200107	1:250	22.04.25

DRAWING No: ITL200107-SK-002 REV: -

L:\PROJECTS\200000 SERIES\200107 - Land at Carpenders Park\Tech\Acad\i-Transport Drawings\Working Drawings\SK\ITL200107-SK-002.dwg

APPENDIX D. TRICS OUTPUTS

Filtering Summary:

Land Use: 03/A RESIDENTIAL/HOUSES PRIVATELY OWNED

Selected Trip Rate Calculation Parameter Range: 150 - 300 DWELLS

Actual Trip Rate Calculation Parameter Range: N/A DWELLS

Date Range: Minimum: 1/1/2016 Maximum: 9/17/2024

Parking Spaces Range: All Surveys Selected

Parking Spaces Per Dwelling Range: All Surveys Selected

Bedrooms Per Dwelling Range: All Surveys Selected

Percentage of Dwellings Privately Owned: All Surveys Selected

Population Within 500m Range: 400 4000

Days of the week selected:

Monday	4
Thursday	4
Tuesday	8
Wednesday	6

Main Location Types selected:

Edge of Town	22

Inclusion of Servicing Vehicles Counts:

Servicing Vehicle Excluded	16
Servicing Vehicles Included	6

Population <1 Mile ranges selected:

1,001 to 5,000	2
10,001 to 15,000	9
15,001 to 20,000	3
20,001 to 25,000	2
5,001 to 10,000	6

Population <5 Mile ranges selected:

100,001 to 125,000	1
125,001 to 250,000	6
25,001 to 50,000	2
250,001 to 500,000	2
5,001 to 25,000	5
50,001 to 75,000	3
75,001 to 100,000	3

Car Ownership <5 Mile ranges selected:

0.6 to 1.0	4
1.1 to 1.5	15
1.6 to 2.0	3

PTAL Rating:

No PTAL Present	22

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use: 03 - RESIDENTIAL

Category: A - HOUSES PRIVATELY OWNED

Total Vehicles

Selected regions and areas:

02	**SOUTH EAST**		
	ES	EAST SUSSEX	1 day
	HC	HAMPSHIRE	4 days
	HF	HERTFORDSHIRE	2 days
	KC	KENT	2 days
	SC	SURREY	2 days
	SP	SOUTHAMPTON	1 day
	WS	WEST SUSSEX	4 days
04	**EAST ANGLIA**		
	NF	NORFOLK	4 days
06	**WEST MIDLANDS**		
	ST	STAFFORDSHIRE	1 day
17	**ULSTER (NORTHERN IRELAND)**		
	AN	ANTRIM	1 day

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

Primary Filtering Selection:

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

Parameter:	DWELLS
Actual Range:	5.36 to 20.9 (units:DWELLS)
Range Selected by User:	150 to 300 (units:DWELLS)
Parking Spaces Range:	6 - 2604

Public Transport Provision:

Selection by:	All Surveys Included
Date Range:	01/01/16 to 17/09/24

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

Selected survey days:

Monday	4 days
Thursday	4 days
Tuesday	8 days
Wednesday	6 days

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

Selected survey types:

Manual count	22
Direction ATC Count	0

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

Selected Locations:

Edge of Town	22 days

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

Selected Location Sub Categories:

No Sub Category	1 days
Out of Town	2 days
Residential Zone	18 days
Village	1 days

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

Inclusion of Servicing Vehicle Counts:

Servicing vehicles Excluded	16 days
Servicing vehicles Included	6 days

Secondary Filtering Selection:

Use Class:

C3	22 surveys

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order (England) 2020 has been used for this purpose, which can be found within the Library module of TRICS®.

Population within 500m Range:

400 - 4000

Population within 1 mile:

1,001 to 5,000	2 surveys
10,001 to 15,000	9 surveys
15,001 to 20,000	3 surveys
20,001 to 25,000	2 surveys
5,001 to 10,000	6 surveys

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

Population within 5 miles:

100,001 to 125,000	1 surveys
125,001 to 250,000	6 surveys
25,001 to 50,000	2 surveys
250,001 to 500,000	2 surveys
5,001 to 25,000	5 surveys
50,001 to 75,000	3 surveys
75,001 to 100,000	3 surveys

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	4 surveys
1.1 to 1.5	15 surveys
1.6 to 2.0	3 surveys

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

Petrol filling station:

This data displays the number of surveys within the selected set that include petrol filling station activity, and the number of surveys that do not.

Travel Plan:

No	5 surveys
Yes	17 surveys

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

PTAL Rating:

No PTAL Present	22 surveys

This data displays the number of surveys within the selected set that include petrol filling station activity, and the number of surveys that do not.

COVID-19 Restrictions:

Yes - At least one survey within the selected data set was undertaken at a time of Covid-19 restrictions

This data displays the number of surveys within the selected set that include petrol filling station activity, and the number of surveys that do not.

LIST OF SITES relevant to selection parameters:

Site 1:	AN-03-A-09	**Site area:**	9.48 hect
Development Name:	DETACHED & SEMI-DETACHED	**Number of dwellings:**	151 DWELLS
Location:	CARRICKFERGUS	**Housing density:**	17.7022274325909
Postcode:	BT38 8FW	**Total Bedrooms:**	459
Main Location Type:	Edge of Town	**Survey Date:**	12/10/2016
Sub Location Type:	No Sub Category	**Survey Day:**	Wednesday
PTAL:	n/a		

Site 2:	ES-03-A-03	**Site area:**	9.91 hect
Development Name:	MIXED HOUSES & FLATS	**Number of dwellings:**	212 DWELLS
Location:	POLEGATE	**Housing density:**	62.7218934911243
Postcode:	BN26 6HR	**Total Bedrooms:**	649
Main Location Type:	Edge of Town	**Survey Date:**	11/07/2016
Sub Location Type:	Residential Zone	**Survey Day:**	Monday
PTAL:	n/a		

Site 3:	HC-03-A-26	**Site area:**	7.01 hect
Development Name:	MIXED HOUSES & FLATS	**Number of dwellings:**	270 DWELLS
Location:	WHITELEY	**Housing density:**	52.2243713733075
Postcode:	PO15 7PH	**Total Bedrooms:**	727
Main Location Type:	Edge of Town	**Survey Date:**	24/06/2021
Sub Location Type:	Out of Town	**Survey Day:**	Thursday
PTAL:	n/a		

Site 4:	HC-03-A-34	**Site area:**	8.47 hect
Development Name:	MIXED HOUSES & FLATS	**Number of dwellings:**	243 DWELLS
Location:	EASTLEIGH	**Housing density:**	30.8767471410419
Postcode:	SO50 9RL	**Total Bedrooms:**	612
Main Location Type:	Edge of Town	**Survey Date:**	14/11/2023
Sub Location Type:	Residential Zone	**Survey Day:**	Tuesday
PTAL:	n/a		

Site 5:	HC-03-A-35	**Site area:**	9.1 hect
Development Name:	MIXED HOUSES & FLATS	**Number of dwellings:**	289 DWELLS
Location:	WATERLOOVILLE	**Housing density:**	36.0349127182045
Postcode:	PO8 9WN	**Total Bedrooms:**	787
Main Location Type:	Edge of Town	**Survey Date:**	31/10/2023
Sub Location Type:	Residential Zone	**Survey Day:**	Tuesday
PTAL:	n/a		

Site 6:	HC-03-A-38	**Site area:**	6.2 hect
Development Name:	MIXED HOUSES & FLATS	**Number of dwellings:**	195 DWELLS
Location:	RINGWOOD	**Housing density:**	39.0781563126252
Postcode:	BH24 3FJ	**Total Bedrooms:**	514
Main Location Type:	Edge of Town	**Survey Date:**	26/06/2024
Sub Location Type:	Residential Zone	**Survey Day:**	Wednesday
PTAL:	n/a		

Site 7:	HF-03-A-03	**Site area:**	5.67 hect
Development Name:	MIXED HOUSES	**Number of dwellings:**	160 DWELLS
Location:	BUNTINGFORD	**Housing density:**	32.4543610547667
Postcode:	SG9 9FX	**Total Bedrooms:**	510
Main Location Type:	Edge of Town	**Survey Date:**	08/07/2019
Sub Location Type:	Residential Zone	**Survey Day:**	Monday
PTAL:	n/a		

Site 8:	HF-03-A-06	**Site area:**	8 hect
Development Name:	MIXED HOUSES & FLATS	**Number of dwellings:**	180 DWELLS
Location:	ROYSTON	**Housing density:**	25.7142857142857
Postcode:	SG8 7FJ	**Total Bedrooms:**	562
Main Location Type:	Edge of Town	**Survey Date:**	28/11/2023
Sub Location Type:	Residential Zone	**Survey Day:**	Tuesday
PTAL:	n/a		

Site 9:	KC-03-A-07	**Site area:**	9.46 hect
Development Name:	MIXED HOUSES	**Number of dwellings:**	288 DWELLS
Location:	HERNE BAY	**Housing density:**	40.0556328233658
Postcode:	CT6 6HZ	**Total Bedrooms:**	934
Main Location Type:	Edge of Town	**Survey Date:**	27/09/2017
Sub Location Type:	Residential Zone	**Survey Day:**	Wednesday
PTAL:	n/a		

Site 10:	KC-03-A-12	**Site area:**	6.78 hect
Development Name:	MIXED HOUSES & FLATS	**Number of dwellings:**	186 DWELLS
Location:	FAVERSHAM	**Housing density:**	35.8381502890173
Postcode:	ME13 7FZ	**Total Bedrooms:**	520
Main Location Type:	Edge of Town	**Survey Date:**	19/09/2023
Sub Location Type:	Residential Zone	**Survey Day:**	Tuesday
PTAL:	n/a		

Site 11:	NF-03-A-06	**Site area:**	9.27 hect
Development Name:	MIXED HOUSES	**Number of dwellings:**	275 DWELLS
Location:	GREAT YARMOUTH	**Housing density:**	32.3529411764706
Postcode:	NR31 9FT	**Total Bedrooms:**	767
Main Location Type:	Edge of Town	**Survey Date:**	23/09/2019
Sub Location Type:	Residential Zone	**Survey Day:**	Monday
PTAL:	n/a		

Site 12:	NF-03-A-30	**Site area:**	11.77 hect
Development Name:	MIXED HOUSES	**Number of dwellings:**	266 DWELLS
Location:	SWAFFHAM	**Housing density:**	26.6800401203611
Postcode:	PE37 8JE	**Total Bedrooms:**	743
Main Location Type:	Edge of Town	**Survey Date:**	23/09/2021
Sub Location Type:	Residential Zone	**Survey Day:**	Thursday
PTAL:	n/a		

Site 13:	NF-03-A-39	**Site area:**	7.84 hect
Development Name:	MIXED HOUSES	**Number of dwellings:**	212 DWELLS
Location:	HOLT	**Housing density:**	31.9758672699849
Postcode:	NR25 6GA	**Total Bedrooms:**	570
Main Location Type:	Edge of Town	**Survey Date:**	27/09/2022
Sub Location Type:	Residential Zone	**Survey Day:**	Tuesday
PTAL:	n/a		

Site 14:	NF-03-A-46	**Site area:**	13.05 hect
Development Name:	MIXED HOUSES & FLATS	**Number of dwellings:**	300 DWELLS
Location:	AYLSHAM	**Housing density:**	28.3018867924528
Postcode:	NR11 6FN	**Total Bedrooms:**	956
Main Location Type:	Edge of Town	**Survey Date:**	14/09/2021
Sub Location Type:	Residential Zone	**Survey Day:**	Tuesday
PTAL:	n/a		

Site 15:	SC-03-A-05	**Site area:**	7.2 hect
Development Name:	MIXED HOUSES	**Number of dwellings:**	207 DWELLS
Location:	HORLEY	**Housing density:**	
Postcode:	RH6 8NT	**Total Bedrooms:**	592
Main Location Type:	Edge of Town	**Survey Date:**	01/04/2019
Sub Location Type:	Residential Zone	**Survey Day:**	Monday
PTAL:	n/a		

Site 16:	SC-03-A-12	**Site area:**	9.38 hect
Development Name:	MIXED HOUSES & FLATS	**Number of dwellings:**	252 DWELLS
Location:	GODALMING	**Housing density:**	31.9391634980989
Postcode:	GU7 2FL	**Total Bedrooms:**	691
Main Location Type:	Edge of Town	**Survey Date:**	12/06/2024
Sub Location Type:	Residential Zone	**Survey Day:**	Wednesday
PTAL:	n/a		

Site 17:	SP-03-A-02	**Site area:**	20.9 hect
Development Name:	MIXED HOUSES & FLATS	**Number of dwellings:**	250 DWELLS
Location:	NEAR SOUTHAMPTON	**Housing density:**	13.4408602150538
Postcode:	SO31 1ET	**Total Bedrooms:**	751
Main Location Type:	Edge of Town	**Survey Date:**	12/10/2021
Sub Location Type:	Out of Town	**Survey Day:**	Tuesday
PTAL:	n/a		

Site 18:	ST-03-A-07	**Site area:**	9 hect
Development Name:	DETACHED & SEMI-DETACHED	**Number of dwellings:**	248 DWELLS
Location:	STAFFORD	**Housing density:**	173.426573426573
Postcode:	ST16 1GZ	**Total Bedrooms:**	821
Main Location Type:	Edge of Town	**Survey Date:**	22/11/2017
Sub Location Type:	Residential Zone	**Survey Day:**	Wednesday
PTAL:	n/a		

Site 19:	WS-03-A-08	**Site area:**	8.86 hect
Development Name:	MIXED HOUSES	**Number of dwellings:**	180 DWELLS
Location:	ANGMERING	**Housing density:**	40.8163265306122
Postcode:	BN16 4PQ	**Total Bedrooms:**	586
Main Location Type:	Edge of Town	**Survey Date:**	19/04/2018
Sub Location Type:	Residential Zone	**Survey Day:**	Thursday
PTAL:	n/a		

Site 20:	WS-03-A-13	**Site area:**	5.36 hect
Development Name:	MIXED HOUSES & FLATS	**Number of dwellings:**	197 DWELLS
Location:	WORTHING	**Housing density:**	52.3936170212766
Postcode:	BN12 6FE	**Total Bedrooms:**	594
Main Location Type:	Edge of Town	**Survey Date:**	23/06/2021
Sub Location Type:	Residential Zone	**Survey Day:**	Wednesday
PTAL:	n/a		

Site 21:	WS-03-A-23	**Site area:**	6.64 hect
Development Name:	MIXED HOUSES & FLATS	**Number of dwellings:**	197 DWELLS
Location:	EAST GRINSTEAD	**Housing density:**	37.8846153846154
Postcode:	RH19 4LX	**Total Bedrooms:**	508
Main Location Type:	Edge of Town	**Survey Date:**	14/05/2024
Sub Location Type:	Residential Zone	**Survey Day:**	Tuesday
PTAL:	n/a		

Site 22:	WS-03-A-24	**Site area:**	13.49 hect
Development Name:	MIXED HOUSES	**Number of dwellings:**	300 DWELLS
Location:	CHICHESTER	**Housing density:**	40.8163265306122
Postcode:	PO18 0GD	**Total Bedrooms:**	824
Main Location Type:	Edge of Town	**Survey Date:**	23/05/2024
Sub Location Type:	Village	**Survey Day:**	Thursday
PTAL:	n/a		

DESELECTED SURVEYS

Site Ref	Survey Date	Reason for Deselection
HC-03-A-24	10-11-2021	Removed: Site re-surveyed by HC-03-A-34
HC-03-A-29	30-06-2022	Removed: Site re-surveyed by HC-03-A-33
HC-03-A-33	04-07-2023	Removed: Site re-surveyed by HC-03-A-38
WS-03-A-09	05-07-2018	Removed: Site re-surveyed by WS-03-A-13
WS-03-A-12	16-06-2021	Removed: Site re-surveyed by WS-03-A-24

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED

Total Vehicles

Calculation factor: 1 DWELLS

**BOLD print indicates peak (busiest) period*

Time Range	No. Days	Ave. DWELLS	Arrivals	Departures	Totals
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	**22**	**230**	**0.079**	**0.283**	**0.362**
08:00-09:00	**22**	**230**	**0.153**	**0.377**	**0.530**
09:00-10:00	**22**	**230**	**0.141**	**0.181**	**0.322**
10:00-11:00	**22**	**230**	**0.120**	**0.142**	**0.262**
11:00-12:00	**22**	**230**	**0.132**	**0.151**	**0.283**
12:00-13:00	**22**	**230**	**0.152**	**0.146**	**0.298**
13:00-14:00	**22**	**230**	**0.153**	**0.149**	**0.302**
14:00-15:00	**22**	**230**	**0.156**	**0.178**	**0.334**
15:00-16:00	**22**	**230**	**0.263**	**0.164**	**0.427**
16:00-17:00	**22**	**230**	**0.284**	**0.160**	**0.444**
17:00-18:00	**22**	**230**	**0.332**	**0.154**	**0.486**
18:00-19:00	**22**	**230**	**0.277**	**0.144**	**0.421**
19:00-20:00					
20:00-21:00					
21:00-22:00					
22:00-23:00					
23:00-00:00					
Total Rates:			**2.242**	**2.229**	**4.471**

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

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

Parameter Summary:

Trip rate parameter range selected:	150 - 300 (units: DWELLS)
Survey date date range:	11/07/2016 - 26/06/2024
Number of weekdays (Monday-Friday):	22
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	5
Surveys manually removed from selection:	0

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

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED

Total People

Calculation factor: 1 DWELLS

**BOLD print indicates peak (busiest) period*

Time Range	No. Days	Ave. DWELLS	Arrivals	Departures	Totals
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	**22**	**230**	**0.108**	**0.490**	**0.598**
08:00-09:00	**22**	**230**	**0.234**	**0.807**	**1.041**
09:00-10:00	**22**	**230**	**0.216**	**0.300**	**0.516**
10:00-11:00	**22**	**230**	**0.179**	**0.237**	**0.416**
11:00-12:00	**22**	**230**	**0.203**	**0.243**	**0.446**
12:00-13:00	**22**	**230**	**0.242**	**0.238**	**0.480**
13:00-14:00	**22**	**230**	**0.249**	**0.236**	**0.485**
14:00-15:00	**22**	**230**	**0.246**	**0.278**	**0.524**
15:00-16:00	**22**	**230**	**0.566**	**0.289**	**0.855**
16:00-17:00	**22**	**230**	**0.558**	**0.275**	**0.833**
17:00-18:00	**22**	**230**	**0.584**	**0.264**	**0.848**
18:00-19:00	**22**	**230**	**0.467**	**0.263**	**0.730**
19:00-20:00					
20:00-21:00					
21:00-22:00					
22:00-23:00					
23:00-00:00					
Total Rates:			**3.852**	**3.920**	**7.772**

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

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

Parameter Summary:

Trip rate parameter range selected:	150 - 300 (units: DWELLS)
Survey date date range:	11/07/2016 - 26/06/2024
Number of weekdays (Monday-Friday):	22
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	5
Surveys manually removed from selection:	0

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

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED

Cyclists

Calculation factor: 1 DWELLS

**BOLD print indicates peak (busiest) period*

Time Range	No. Days	Ave. DWELLS	Arrivals	Departures	Totals
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	**22**	**230**	**0.002**	**0.009**	**0.011**
08:00-09:00	**22**	**230**	**0.005**	**0.019**	**0.024**
09:00-10:00	**22**	**230**	**0.002**	**0.003**	**0.005**
10:00-11:00	**22**	**230**	**0.002**	**0.003**	**0.005**
11:00-12:00	**22**	**230**	**0.002**	**0.003**	**0.005**
12:00-13:00	**22**	**230**	**0.003**	**0.004**	**0.007**
13:00-14:00	**22**	**230**	**0.003**	**0.002**	**0.005**
14:00-15:00	**22**	**230**	**0.004**	**0.004**	**0.008**
15:00-16:00	**22**	**230**	**0.008**	**0.004**	**0.012**
16:00-17:00	**22**	**230**	**0.016**	**0.008**	**0.024**
17:00-18:00	**22**	**230**	**0.014**	**0.008**	**0.022**
18:00-19:00	**22**	**230**	**0.007**	**0.005**	**0.012**
19:00-20:00					
20:00-21:00					
21:00-22:00					
22:00-23:00					
23:00-00:00					
Total Rates:			**0.068**	**0.072**	**0.140**

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

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

Parameter Summary:

Trip rate parameter range selected:	150 - 300 (units: DWELLS)
Survey date date range:	11/07/2016 - 26/06/2024
Number of weekdays (Monday-Friday):	22
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	5
Surveys manually removed from selection:	0

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

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED

PSVs

Calculation factor: 1 DWELLS

**BOLD print indicates peak (busiest) period*

Time Range	No. Days	Ave. DWELLS	Arrivals	Departures	Totals
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	**22**	**230**	**0.001**	**0.001**	**0.002**
08:00-09:00	**22**	**230**	**0.001**	**0.001**	**0.002**
09:00-10:00	**22**	**230**	**0.001**	**0.001**	**0.002**
10:00-11:00	**22**	**230**	**0.001**	**0.001**	**0.002**
11:00-12:00	**22**	**230**	**0.000**	**0.000**	**0.000**
12:00-13:00	**22**	**230**	**0.000**	**0.000**	**0.000**
13:00-14:00	**22**	**230**	**0.001**	**0.001**	**0.002**
14:00-15:00	**22**	**230**	**0.000**	**0.000**	**0.000**
15:00-16:00	**22**	**230**	**0.001**	**0.001**	**0.002**
16:00-17:00	**22**	**230**	**0.001**	**0.001**	**0.002**
17:00-18:00	**22**	**230**	**0.001**	**0.001**	**0.002**
18:00-19:00	**22**	**230**	**0.000**	**0.000**	**0.000**
19:00-20:00					
20:00-21:00					
21:00-22:00					
22:00-23:00					
23:00-00:00					
Total Rates:			**0.008**	**0.008**	**0.016**

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

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

Parameter Summary:

Trip rate parameter range selected:	150 - 300 (units: DWELLS)
Survey date date range:	12/10/2016 - 12/06/2024
Number of weekdays (Monday-Friday):	5
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	5
Surveys manually removed from selection:	0

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

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED

OGVs

Calculation factor: 1 DWELLS

**BOLD print indicates peak (busiest) period*

Time Range	No. Days	Ave. DWELLS	Arrivals	Departures	Totals
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	**22**	**230**	**0.001**	**0.001**	**0.002**
08:00-09:00	**22**	**230**	**0.002**	**0.002**	**0.004**
09:00-10:00	**22**	**230**	**0.003**	**0.001**	**0.004**
10:00-11:00	**22**	**230**	**0.001**	**0.002**	**0.003**
11:00-12:00	**22**	**230**	**0.002**	**0.002**	**0.004**
12:00-13:00	**22**	**230**	**0.003**	**0.003**	**0.006**
13:00-14:00	**22**	**230**	**0.002**	**0.001**	**0.003**
14:00-15:00	**22**	**230**	**0.001**	**0.002**	**0.003**
15:00-16:00	**22**	**230**	**0.002**	**0.002**	**0.004**
16:00-17:00	**22**	**230**	**0.001**	**0.001**	**0.002**
17:00-18:00	**22**	**230**	**0.001**	**0.000**	**0.001**
18:00-19:00	**22**	**230**	**0.001**	**0.001**	**0.002**
19:00-20:00					
20:00-21:00					
21:00-22:00					
22:00-23:00					
23:00-00:00					
Total Rates:			**0.020**	**0.018**	**0.038**

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

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

Parameter Summary:

Trip rate parameter range selected:	150 - 300 (units: DWELLS)
Survey date date range:	11/07/2016 - 26/06/2024
Number of weekdays (Monday-Friday):	20
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	5
Surveys manually removed from selection:	0

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

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED

Taxis

Calculation factor: 1 DWELLS

**BOLD print indicates peak (busiest) period*

Time Range	No. Days	Ave. DWELLS	Arrivals	Departures	Totals
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	**22**	**230**	**0.002**	**0.002**	**0.004**
08:00-09:00	**22**	**230**	**0.008**	**0.008**	**0.016**
09:00-10:00	**22**	**230**	**0.003**	**0.003**	**0.006**
10:00-11:00	**22**	**230**	**0.002**	**0.002**	**0.004**
11:00-12:00	**22**	**230**	**0.002**	**0.002**	**0.004**
12:00-13:00	**22**	**230**	**0.002**	**0.002**	**0.004**
13:00-14:00	**22**	**230**	**0.002**	**0.001**	**0.003**
14:00-15:00	**22**	**230**	**0.003**	**0.002**	**0.005**
15:00-16:00	**22**	**230**	**0.005**	**0.005**	**0.010**
16:00-17:00	**22**	**230**	**0.004**	**0.005**	**0.009**
17:00-18:00	**22**	**230**	**0.002**	**0.002**	**0.004**
18:00-19:00	**22**	**230**	**0.001**	**0.001**	**0.002**
19:00-20:00					
20:00-21:00					
21:00-22:00					
22:00-23:00					
23:00-00:00					
Total Rates:			**0.036**	**0.035**	**0.071**

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

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

Parameter Summary:

Trip rate parameter range selected:	150 - 300 (units: DWELLS)
Survey date date range:	11/07/2016 - 26/06/2024
Number of weekdays (Monday-Friday):	22
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	5
Surveys manually removed from selection:	0

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

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED

Cars

Calculation factor: 1 DWELLS

**BOLD print indicates peak (busiest) period*

Time Range	No. Days	Ave. DWELLS	Arrivals	Departures	Totals
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	**22**	**230**	**0.061**	**0.252**	**0.313**
08:00-09:00	**22**	**230**	**0.126**	**0.339**	**0.465**
09:00-10:00	**22**	**230**	**0.114**	**0.155**	**0.269**
10:00-11:00	**22**	**230**	**0.098**	**0.121**	**0.219**
11:00-12:00	**22**	**230**	**0.110**	**0.125**	**0.235**
12:00-13:00	**22**	**230**	**0.125**	**0.122**	**0.247**
13:00-14:00	**22**	**230**	**0.130**	**0.124**	**0.254**
14:00-15:00	**22**	**230**	**0.135**	**0.156**	**0.291**
15:00-16:00	**22**	**230**	**0.238**	**0.138**	**0.376**
16:00-17:00	**22**	**230**	**0.252**	**0.137**	**0.389**
17:00-18:00	**22**	**230**	**0.295**	**0.138**	**0.433**
18:00-19:00	**22**	**230**	**0.256**	**0.129**	**0.385**
19:00-20:00					
20:00-21:00					
21:00-22:00					
22:00-23:00					
23:00-00:00					
Total Rates:			**1.940**	**1.936**	**3.876**

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

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

Parameter Summary:

Trip rate parameter range selected:	150 - 300 (units: DWELLS)
Survey date date range:	11/07/2016 - 26/06/2024
Number of weekdays (Monday-Friday):	22
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	5
Surveys manually removed from selection:	0

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

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED

LGVs

Calculation factor: 1 DWELLS

**BOLD print indicates peak (busiest) period*

Time Range	No. Days	Ave. DWELLS	Arrivals	Departures	Totals
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	**22**	**230**	**0.013**	**0.025**	**0.038**
08:00-09:00	**22**	**230**	**0.016**	**0.024**	**0.040**
09:00-10:00	**22**	**230**	**0.020**	**0.020**	**0.040**
10:00-11:00	**22**	**230**	**0.017**	**0.016**	**0.033**
11:00-12:00	**22**	**230**	**0.017**	**0.021**	**0.038**
12:00-13:00	**22**	**230**	**0.019**	**0.017**	**0.036**
13:00-14:00	**22**	**230**	**0.019**	**0.021**	**0.040**
14:00-15:00	**22**	**230**	**0.016**	**0.017**	**0.033**
15:00-16:00	**22**	**230**	**0.015**	**0.016**	**0.031**
16:00-17:00	**22**	**230**	**0.022**	**0.015**	**0.037**
17:00-18:00	**22**	**230**	**0.028**	**0.012**	**0.040**
18:00-19:00	**22**	**230**	**0.017**	**0.010**	**0.027**
19:00-20:00					
20:00-21:00					
21:00-22:00					
22:00-23:00					
23:00-00:00					
Total Rates:			**0.219**	**0.214**	**0.433**

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

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

Parameter Summary:

Trip rate parameter range selected:	150 - 300 (units: DWELLS)
Survey date date range:	11/07/2016 - 26/06/2024
Number of weekdays (Monday-Friday):	22
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	5
Surveys manually removed from selection:	0

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

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED

Motorcycles

Calculation factor: 1 DWELLS

**BOLD print indicates peak (busiest) period*

Time Range	No. Days	Ave. DWELLS	Arrivals	Departures	Totals
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	**22**	**230**	**0.000**	**0.001**	**0.001**
08:00-09:00	**22**	**230**	**0.001**	**0.003**	**0.004**
09:00-10:00	**22**	**230**	**0.000**	**0.001**	**0.001**
10:00-11:00	**22**	**230**	**0.001**	**0.001**	**0.002**
11:00-12:00	**22**	**230**	**0.001**	**0.001**	**0.002**
12:00-13:00	**22**	**230**	**0.002**	**0.002**	**0.004**
13:00-14:00	**22**	**230**	**0.000**	**0.001**	**0.001**
14:00-15:00	**22**	**230**	**0.002**	**0.001**	**0.003**
15:00-16:00	**22**	**230**	**0.002**	**0.002**	**0.004**
16:00-17:00	**22**	**230**	**0.004**	**0.002**	**0.006**
17:00-18:00	**22**	**230**	**0.005**	**0.002**	**0.007**
18:00-19:00	**22**	**230**	**0.002**	**0.002**	**0.004**
19:00-20:00					
20:00-21:00					
21:00-22:00					
22:00-23:00					
23:00-00:00					
Total Rates:			**0.020**	**0.019**	**0.039**

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

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

Parameter Summary:

Trip rate parameter range selected:	150 - 300 (units: DWELLS)
Survey date date range:	11/07/2016 - 26/06/2024
Number of weekdays (Monday-Friday):	19
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	5
Surveys manually removed from selection:	0

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

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED

Vehicle Occupants

Calculation factor: 1 DWELLS

**BOLD print indicates peak (busiest) period*

Time Range	No. Days	Ave. DWELLS	Arrivals	Departures	Totals
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	**22**	**230**	**0.090**	**0.423**	**0.513**
08:00-09:00	**22**	**230**	**0.187**	**0.648**	**0.835**
09:00-10:00	**22**	**230**	**0.179**	**0.260**	**0.439**
10:00-11:00	**22**	**230**	**0.154**	**0.205**	**0.359**
11:00-12:00	**22**	**230**	**0.177**	**0.212**	**0.389**
12:00-13:00	**22**	**230**	**0.208**	**0.203**	**0.411**
13:00-14:00	**22**	**230**	**0.213**	**0.206**	**0.419**
14:00-15:00	**22**	**230**	**0.214**	**0.240**	**0.454**
15:00-16:00	**22**	**230**	**0.443**	**0.235**	**0.678**
16:00-17:00	**22**	**230**	**0.457**	**0.226**	**0.683**
17:00-18:00	**22**	**230**	**0.513**	**0.219**	**0.732**
18:00-19:00	**22**	**230**	**0.411**	**0.215**	**0.626**
19:00-20:00					
20:00-21:00					
21:00-22:00					
22:00-23:00					
23:00-00:00					
Total Rates:			**3.246**	**3.292**	**6.538**

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

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

Parameter Summary:

Trip rate parameter range selected:	150 - 300 (units: DWELLS)
Survey date date range:	11/07/2016 - 26/06/2024
Number of weekdays (Monday-Friday):	22
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	5
Surveys manually removed from selection:	0

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

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED

Pedestrians

Calculation factor: 1 DWELLS

**BOLD print indicates peak (busiest) period*

Time Range	No. Days	Ave. DWELLS	Arrivals	Departures	Totals
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	**22**	**230**	**0.014**	**0.033**	**0.047**
08:00-09:00	**22**	**230**	**0.037**	**0.098**	**0.135**
09:00-10:00	**22**	**230**	**0.033**	**0.029**	**0.062**
10:00-11:00	**22**	**230**	**0.021**	**0.024**	**0.045**
11:00-12:00	**22**	**230**	**0.022**	**0.024**	**0.046**
12:00-13:00	**22**	**230**	**0.029**	**0.027**	**0.056**
13:00-14:00	**22**	**230**	**0.028**	**0.024**	**0.052**
14:00-15:00	**22**	**230**	**0.024**	**0.031**	**0.055**
15:00-16:00	**22**	**230**	**0.083**	**0.043**	**0.126**
16:00-17:00	**22**	**230**	**0.068**	**0.036**	**0.104**
17:00-18:00	**22**	**230**	**0.044**	**0.035**	**0.079**
18:00-19:00	**22**	**230**	**0.037**	**0.040**	**0.077**
19:00-20:00					
20:00-21:00					
21:00-22:00					
22:00-23:00					
23:00-00:00					
Total Rates:			**0.440**	**0.444**	**0.884**

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

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

Parameter Summary:

Trip rate parameter range selected:	150 - 300 (units: DWELLS)
Survey date date range:	11/07/2016 - 26/06/2024
Number of weekdays (Monday-Friday):	22
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	5
Surveys manually removed from selection:	0

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

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED

Public Transport Users

Calculation factor: 1 DWELLS

**BOLD print indicates peak (busiest) period*

Time Range	No. Days	Ave. DWELLS	Arrivals	Departures	Totals
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	**22**	**230**	**0.002**	**0.024**	**0.026**
08:00-09:00	**22**	**230**	**0.005**	**0.036**	**0.041**
09:00-10:00	**22**	**230**	**0.002**	**0.008**	**0.010**
10:00-11:00	**22**	**230**	**0.002**	**0.005**	**0.007**
11:00-12:00	**22**	**230**	**0.003**	**0.004**	**0.007**
12:00-13:00	**22**	**230**	**0.002**	**0.003**	**0.005**
13:00-14:00	**22**	**230**	**0.005**	**0.004**	**0.009**
14:00-15:00	**22**	**230**	**0.004**	**0.003**	**0.007**
15:00-16:00	**22**	**230**	**0.029**	**0.007**	**0.036**
16:00-17:00	**22**	**230**	**0.016**	**0.004**	**0.020**
17:00-18:00	**22**	**230**	**0.013**	**0.003**	**0.016**
18:00-19:00	**22**	**230**	**0.009**	**0.003**	**0.012**
19:00-20:00					
20:00-21:00					
21:00-22:00					
22:00-23:00					
23:00-00:00					
Total Rates:			**0.092**	**0.104**	**0.196**

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

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

Parameter Summary:

Trip rate parameter range selected:	150 - 300 (units: DWELLS)
Survey date date range:	11/07/2016 - 26/06/2024
Number of weekdays (Monday-Friday):	21
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	5
Surveys manually removed from selection:	0

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

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED

Bus/Tram Passengers

Calculation factor: 1 DWELLS

**BOLD print indicates peak (busiest) period*

Time Range	No. Days	Ave. DWELLS	Arrivals	Departures	Totals
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	**22**	**230**	**0.001**	**0.016**	**0.017**
08:00-09:00	**22**	**230**	**0.005**	**0.028**	**0.033**
09:00-10:00	**22**	**230**	**0.002**	**0.005**	**0.007**
10:00-11:00	**22**	**230**	**0.002**	**0.003**	**0.005**
11:00-12:00	**22**	**230**	**0.003**	**0.004**	**0.007**
12:00-13:00	**22**	**230**	**0.002**	**0.002**	**0.004**
13:00-14:00	**22**	**230**	**0.004**	**0.003**	**0.007**
14:00-15:00	**22**	**230**	**0.004**	**0.002**	**0.006**
15:00-16:00	**22**	**230**	**0.024**	**0.006**	**0.030**
16:00-17:00	**22**	**230**	**0.014**	**0.004**	**0.018**
17:00-18:00	**22**	**230**	**0.009**	**0.002**	**0.011**
18:00-19:00	**22**	**230**	**0.007**	**0.003**	**0.010**
19:00-20:00					
20:00-21:00					
21:00-22:00					
22:00-23:00					
23:00-00:00					
Total Rates:			**0.077**	**0.078**	**0.155**

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

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

Parameter Summary:

Trip rate parameter range selected:	150 - 300 (units: DWELLS)
Survey date date range:	11/07/2016 - 26/06/2024
Number of weekdays (Monday-Friday):	21
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	5
Surveys manually removed from selection:	0

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

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED

Coach Passengers

Calculation factor: 1 DWELLS

**BOLD print indicates peak (busiest) period*

Time Range	No. Days	Ave. DWELLS	Arrivals	Departures	Totals
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	**22**	**230**	**0.000**	**0.000**	**0.000**
08:00-09:00	**22**	**230**	**0.000**	**0.002**	**0.002**
09:00-10:00	**22**	**230**	**0.000**	**0.000**	**0.000**
10:00-11:00	**22**	**230**	**0.000**	**0.000**	**0.000**
11:00-12:00	**22**	**230**	**0.000**	**0.000**	**0.000**
12:00-13:00	**22**	**230**	**0.000**	**0.000**	**0.000**
13:00-14:00	**22**	**230**	**0.000**	**0.000**	**0.000**
14:00-15:00	**22**	**230**	**0.000**	**0.000**	**0.000**
15:00-16:00	**22**	**230**	**0.002**	**0.000**	**0.002**
16:00-17:00	**22**	**230**	**0.000**	**0.000**	**0.000**
17:00-18:00	**22**	**230**	**0.000**	**0.000**	**0.000**
18:00-19:00	**22**	**230**	**0.000**	**0.000**	**0.000**
19:00-20:00					
20:00-21:00					
21:00-22:00					
22:00-23:00					
23:00-00:00					
Total Rates:			**0.002**	**0.002**	**0.004**

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

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

Parameter Summary:

Trip rate parameter range selected:	150 - 300 (units: DWELLS)
Survey date date range:	23/06/2021 - 12/06/2024
Number of weekdays (Monday-Friday):	3
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	5
Surveys manually removed from selection:	0

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

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED

Total Rail Passengers

Calculation factor: 1 DWELLS

**BOLD print indicates peak (busiest) period*

Time Range	No. Days	Ave. DWELLS	Arrivals	Departures	Totals
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	**22**	**230**	**0.001**	**0.007**	**0.008**
08:00-09:00	**22**	**230**	**0.000**	**0.007**	**0.007**
09:00-10:00	**22**	**230**	**0.000**	**0.002**	**0.002**
10:00-11:00	**22**	**230**	**0.000**	**0.002**	**0.002**
11:00-12:00	**22**	**230**	**0.000**	**0.001**	**0.001**
12:00-13:00	**22**	**230**	**0.000**	**0.001**	**0.001**
13:00-14:00	**22**	**230**	**0.001**	**0.001**	**0.002**
14:00-15:00	**22**	**230**	**0.001**	**0.000**	**0.001**
15:00-16:00	**22**	**230**	**0.003**	**0.001**	**0.004**
16:00-17:00	**22**	**230**	**0.002**	**0.000**	**0.002**
17:00-18:00	**22**	**230**	**0.004**	**0.000**	**0.004**
18:00-19:00	**22**	**230**	**0.003**	**0.000**	**0.003**
19:00-20:00					
20:00-21:00					
21:00-22:00					
22:00-23:00					
23:00-00:00					
Total Rates:			**0.015**	**0.022**	**0.037**

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

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

Parameter Summary:

Trip rate parameter range selected:	150 - 300 (units: DWELLS)
Survey date date range:	11/07/2016 - 26/06/2024
Number of weekdays (Monday-Friday):	14
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	5
Surveys manually removed from selection:	0

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

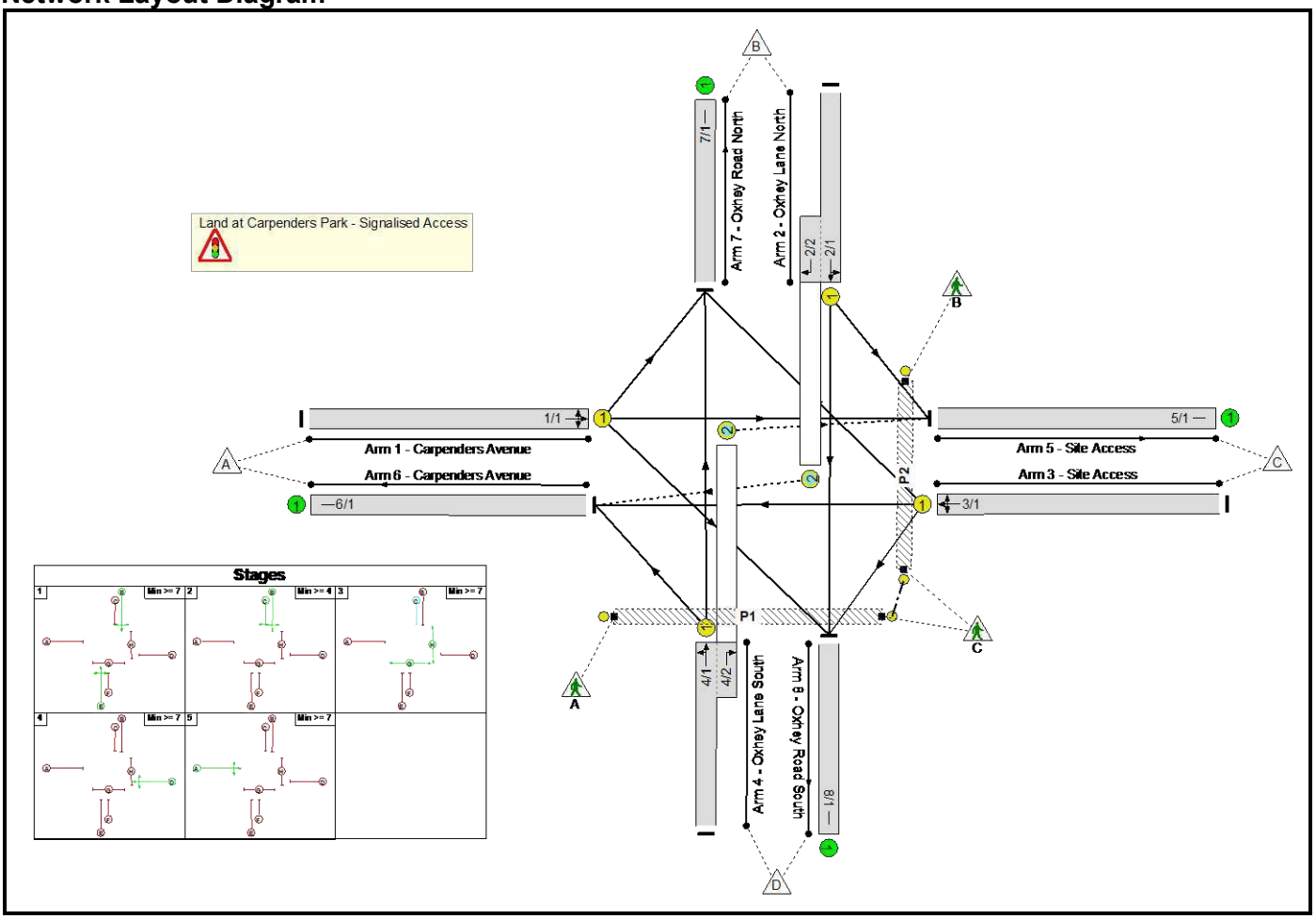
APPENDIX E. LINSIG OUTPUTS

Full Input Data And Results

User and Project Details

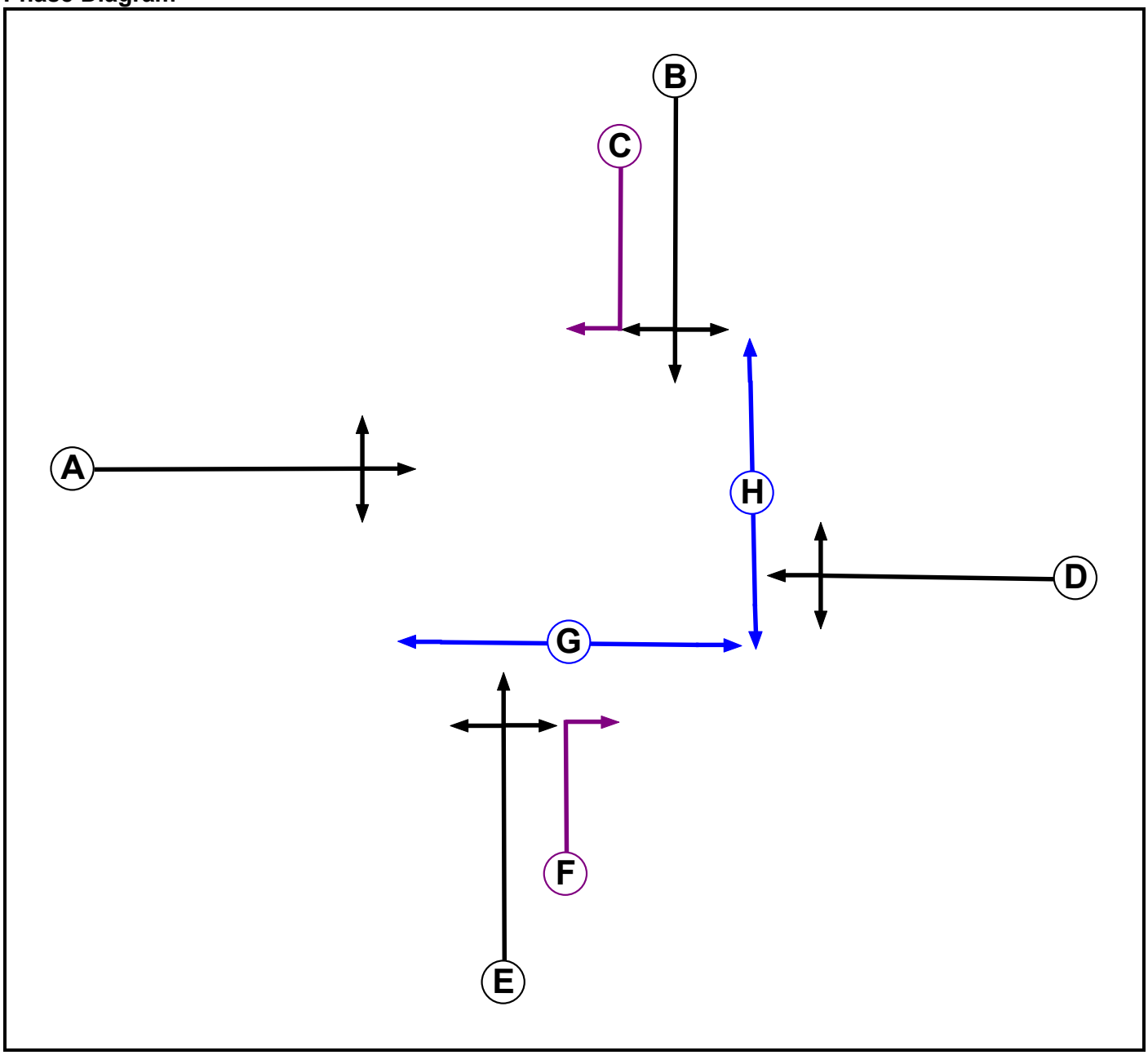
Project:	**ITL200107 - Land at Carpenders Park**
Title:	**Site Access Junction Modelling**
Location:	
Client:	Burlington Property Group
Additional detail:	
File name:	Land at Carpenders Park - Site Access Junction 257 dwells - (Southern Crossing) Post-app.lsg3x
Author:	
Company:	
Address:	

Network Layout Diagram



Full Input Data And Results

Phase Diagram



Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Ind. Arrow	B	4	4
D	Traffic		7	7
E	Traffic		7	7
F	Ind. Arrow	E	4	4
G	Pedestrian		7	7
H	Pedestrian		7	7

Full Input Data And Results

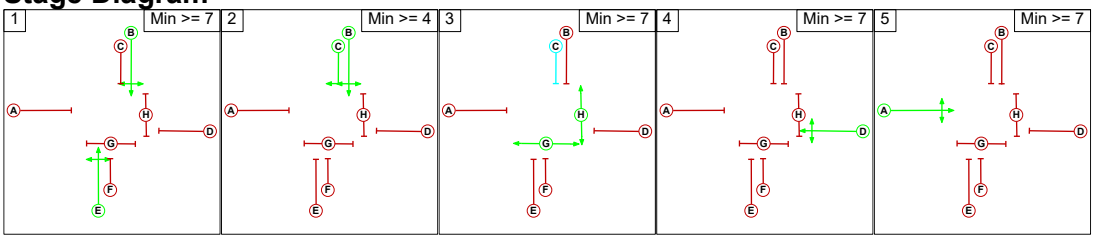
Phase Intergreens Matrix

Terminating Phase	Starting Phase							
	A	B	C	D	E	F	G	H
A		5	5	5	5	5	7	6
B	5		-	6	-	5	5	7
C	6	-		5	6	-	-	-
D	5	5	5		6	5	8	5
E	6	-	5	5		-	7	8
F	5	5	-	5	-		5	-
G	8	8	-	8	8	8		-
H	7	7	-	7	7	-	-	

Phases in Stage

Stage No.	Phases in Stage
1	B E
2	B C
3	G H
4	D
5	A

Stage Diagram



Phase Delays

Term. Stage	Start Stage	Phase	Type	Value	Cont value
3	2	H	Losing	1	1
3	4	H	Losing	1	1
3	5	H	Losing	1	1

Prohibited Stage Change

From Stage	To Stage					
	1	2	3	4	5
1		5	8	6	6
2	6		7	6	6
3	8	X		8	8
4	6	5	8		5
5	5	5	7	5	

Full Input Data And Results

Give-Way Lane Input Data

Junction: Land at Carpenders Park - Signalised Access											
Lane	**Movement**	**Max Flow when Giving Way (PCU/Hr)**	**Min Flow when Giving Way (PCU/Hr)**	**Opposing Lane**	**Opp. Lane Coeff.**	**Opp. Mvmnts.**	**Right Turn Storage (PCU)**	**Non-Blocking Storage (PCU)**	**RTF**	**Right Turn Move up (s)**	**Max Turns in Intergreen (PCU)**
2/2 (Oxhey Lane North)	6/1 (Right)	1439	0	4/1	1.09	To 6/1 (Left) To 7/1 (Ahead)	13.50	-	0.50	14	2.00
				1/1	1.09	To 5/1 (Ahead) To 7/1 (Left) To 8/1 (Right)					
				3/1	1.09	To 6/1 (Ahead) To 7/1 (Right)					
4/2 (Oxhey Lane South)	5/1 (Right)	1439	0	1/1	1.09	To 5/1 (Ahead) To 8/1 (Right)	14.60	-	0.50	15	2.00
				3/1	1.09	To 6/1 (Ahead) To 7/1 (Right)					
				2/1	1.09	All					

Full Input Data And Results

Lane Input Data

Junction: Land at Carpenders Park - Signalised Access												
Lane	**Lane Type**	**Phases**	**Start Disp.**	**End Disp.**	**Physical Length (PCU)**	**Sat Flow Type**	**Def User Saturation Flow (PCU/Hr)**	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Turns**	**Turning Radius (m)**
1/1 (Carpenders Avenue)	U	A	2	3	60.0	Geom	-	3.70	0.00	Y	Arm 5 Ahead	Inf
											Arm 7 Left	7.00
											Arm 8 Right	13.00
2/1 (Oxhey Lane North)	U	B	2	3	60.0	Geom	-	3.05	0.00	Y	Arm 5 Left	10.00
											Arm 8 Ahead	Inf
2/2 (Oxhey Lane North)	O	B C	2	3	4.9	Geom	-	3.05	0.00	Y	Arm 6 Right	10.00
3/1 (Site Access)	U	D	2	3	60.0	Geom	-	2.75	0.00	Y	Arm 6 Ahead	Inf
											Arm 7 Right	10.00
											Arm 8 Left	13.00
4/1 (Oxhey Lane South)	U	E	2	3	60.0	Geom	-	3.15	0.00	Y	Arm 6 Left	10.00
											Arm 7 Ahead	Inf
4/2 (Oxhey Lane South)	O	E F	2	3	4.1	Geom	-	3.00	0.00	Y	Arm 5 Right	10.00
5/1 (Site Access)	U		2	3	60.0	Inf	-	-	-	-	-	-
6/1 (Carpenders Avenue)	U		2	3	60.0	Inf	-	-	-	-	-	-
7/1 (Oxhey Road North)	U		2	3	60.0	Inf	-	-	-	-	-	-
8/1 (Oxhey Road South)	U		2	3	60.0	Inf	-	-	-	-	-	-

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: '2030 + Dev AM'	08:00	09:00	01:00	
2: '2030 + Dev PM'	17:00	18:00	01:00	
3: '2030 + Dev (Vision) AM'	08:00	09:00	01:00	
4: '2030 + Dev (Vision) PM'	17:00	18:00	01:00	

Scenario 1: '2030 + Dev AM' (FG1: '2030 + Dev AM', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	85	3	47	135
	B	79	0	19	675	773
	C	7	45	0	44	96
	D	42	634	19	0	695
	Tot.	128	764	41	766	1699

Traffic Lane Flows

Lane	Scenario 1: 2030 + Dev AM
Junction: Land at Carpenders Park - Signalised Access	
1/1	135
2/1 (with short)	773(In) 694(Out)
2/2 (short)	79
3/1	96
4/1 (with short)	695(In) 676(Out)
4/2 (short)	19
5/1	41
6/1	128
7/1	764
8/1	766

Full Input Data And Results

Lane Saturation Flows

Junction: Land at Carpenders Park - Signalised Access								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Carpenders Avenue)	3.70	0.00	Y	Arm 5 Ahead	Inf	2.2 %	1689	1689
				Arm 7 Left	7.00	63.0 %		
				Arm 8 Right	13.00	34.8 %		
2/1 (Oxhey Lane North)	3.05	0.00	Y	Arm 5 Left	10.00	2.7 %	1912	1912
				Arm 8 Ahead	Inf	97.3 %		
2/2 (Oxhey Lane North)	3.05	0.00	Y	Arm 6 Right	10.00	100.0 %	1670	1670
3/1 (Site Access)	2.75	0.00	Y	Arm 6 Ahead	Inf	7.3 %	1683	1683
				Arm 7 Right	10.00	46.9 %		
				Arm 8 Left	13.00	45.8 %		
4/1 (Oxhey Lane South)	3.15	0.00	Y	Arm 6 Left	10.00	6.2 %	1912	1912
				Arm 7 Ahead	Inf	93.8 %		
4/2 (Oxhey Lane South)	3.00	0.00	Y	Arm 5 Right	10.00	100.0 %	1665	1665
5/1 (Site Access Lane 1)	Infinite Saturation Flow						Inf	Inf
6/1 (Carpenders Avenue Lane 1)	Infinite Saturation Flow						Inf	Inf
7/1 (Oxhey Road North Lane 1)	Infinite Saturation Flow						Inf	Inf
8/1 (Oxhey Road South Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 2: '2030 + Dev PM' (FG2: '2030 + Dev PM', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	68	11	42	121
	B	122	0	37	638	797
	C	5	19	0	20	44
	D	59	577	39	0	675
	Tot.	186	664	87	700	1637

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 2: 2030 + Dev PM
Junction: Land at Carpenders Park - Signalised Access	
1/1	121
2/1 (with short)	797(In) 675(Out)
2/2 (short)	122
3/1	44
4/1 (with short)	675(In) 636(Out)
4/2 (short)	39
5/1	87
6/1	186
7/1	664
8/1	700

Lane Saturation Flows

Junction: Land at Carpenders Park - Signalised Access								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Carpenders Avenue)	3.70	0.00	Y	Arm 5 Ahead	Inf	9.1 %	1711	1711
				Arm 7 Left	7.00	56.2 %		
				Arm 8 Right	13.00	34.7 %		
2/1 (Oxhey Lane North)	3.05	0.00	Y	Arm 5 Left	10.00	5.5 %	1904	1904
				Arm 8 Ahead	Inf	94.5 %		
2/2 (Oxhey Lane North)	3.05	0.00	Y	Arm 6 Right	10.00	100.0 %	1670	1670
3/1 (Site Access)	2.75	0.00	Y	Arm 6 Ahead	Inf	11.4 %	1692	1692
				Arm 7 Right	10.00	43.2 %		
				Arm 8 Left	13.00	45.5 %		
4/1 (Oxhey Lane South)	3.15	0.00	Y	Arm 6 Left	10.00	9.3 %	1904	1904
				Arm 7 Ahead	Inf	90.7 %		
4/2 (Oxhey Lane South)	3.00	0.00	Y	Arm 5 Right	10.00	100.0 %	1665	1665
5/1 (Site Access Lane 1)	Infinite Saturation Flow						Inf	Inf
6/1 (Carpenders Avenue Lane 1)	Infinite Saturation Flow						Inf	Inf
7/1 (Oxhey Road North Lane 1)	Infinite Saturation Flow						Inf	Inf
8/1 (Oxhey Road South Lane 1)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Scenario 3: '2030 + Dev (Vision) AM' (FG3: '2030 + Dev (Vision) AM', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	85	2	47	134
	B	79	0	15	675	769
	C	6	38	0	37	81
	D	42	634	14	0	690
	Tot.	127	757	31	759	1674

Traffic Lane Flows

Lane	Scenario 3: 2030 + Dev (Vision) AM
Junction: Land at Carpenders Park - Signalised Access	
1/1	134
2/1 (with short)	769(In) 690(Out)
2/2 (short)	79
3/1	81
4/1 (with short)	690(In) 676(Out)
4/2 (short)	14
5/1	31
6/1	127
7/1	757
8/1	759

Full Input Data And Results

Lane Saturation Flows

Junction: Land at Carpenders Park - Signalised Access								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Carpenders Avenue)	3.70	0.00	Y	Arm 5 Ahead	Inf	1.5 %	1687	1687
				Arm 7 Left	7.00	63.4 %		
				Arm 8 Right	13.00	35.1 %		
2/1 (Oxhey Lane North)	3.05	0.00	Y	Arm 5 Left	10.00	2.2 %	1914	1914
				Arm 8 Ahead	Inf	97.8 %		
2/2 (Oxhey Lane North)	3.05	0.00	Y	Arm 6 Right	10.00	100.0 %	1670	1670
3/1 (Site Access)	2.75	0.00	Y	Arm 6 Ahead	Inf	7.4 %	1683	1683
				Arm 7 Right	10.00	46.9 %		
				Arm 8 Left	13.00	45.7 %		
4/1 (Oxhey Lane South)	3.15	0.00	Y	Arm 6 Left	10.00	6.2 %	1912	1912
				Arm 7 Ahead	Inf	93.8 %		
4/2 (Oxhey Lane South)	3.00	0.00	Y	Arm 5 Right	10.00	100.0 %	1665	1665
5/1 (Site Access Lane 1)	Infinite Saturation Flow						Inf	Inf
6/1 (Carpenders Avenue Lane 1)	Infinite Saturation Flow						Inf	Inf
7/1 (Oxhey Road North Lane 1)	Infinite Saturation Flow						Inf	Inf
8/1 (Oxhey Road South Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 4: '2030 + Dev (Vision) PM' (FG4: '2030 + Dev (Vision) PM', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	68	9	42	119
	B	122	0	30	638	790
	C	4	15	0	15	34
	D	59	577	31	0	667
	Tot.	185	660	70	695	1610

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 4: 2030 + Dev (Vision) PM
Junction: Land at Carpenders Park - Signalised Access	
1/1	119
2/1 (with short)	790(In) 668(Out)
2/2 (short)	122
3/1	34
4/1 (with short)	667(In) 636(Out)
4/2 (short)	31
5/1	70
6/1	185
7/1	660
8/1	695

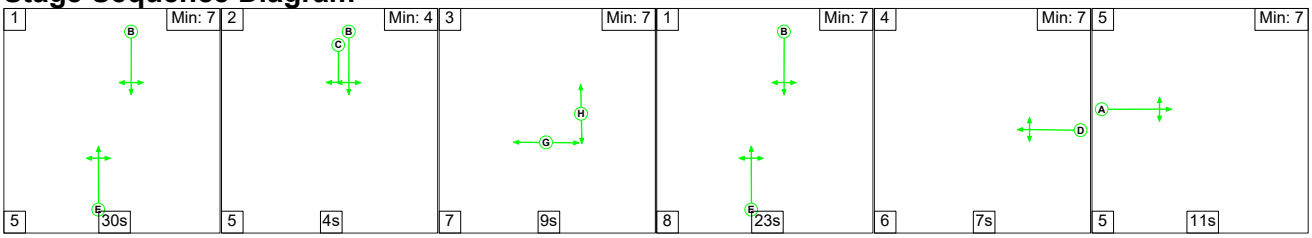
Lane Saturation Flows

Junction: Land at Carpenders Park - Signalised Access								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Carpenders Avenue)	3.70	0.00	Y	Arm 5 Ahead	Inf	7.6 %	1707	1707
				Arm 7 Left	7.00	57.1 %		
				Arm 8 Right	13.00	35.3 %		
2/1 (Oxhey Lane North)	3.05	0.00	Y	Arm 5 Left	10.00	4.5 %	1907	1907
				Arm 8 Ahead	Inf	95.5 %		
2/2 (Oxhey Lane North)	3.05	0.00	Y	Arm 6 Right	10.00	100.0 %	1670	1670
3/1 (Site Access)	2.75	0.00	Y	Arm 6 Ahead	Inf	11.8 %	1692	1692
				Arm 7 Right	10.00	44.1 %		
				Arm 8 Left	13.00	44.1 %		
4/1 (Oxhey Lane South)	3.15	0.00	Y	Arm 6 Left	10.00	9.3 %	1904	1904
				Arm 7 Ahead	Inf	90.7 %		
4/2 (Oxhey Lane South)	3.00	0.00	Y	Arm 5 Right	10.00	100.0 %	1665	1665
5/1 (Site Access Lane 1)	Infinite Saturation Flow						Inf	Inf
6/1 (Carpenders Avenue Lane 1)	Infinite Saturation Flow						Inf	Inf
7/1 (Oxhey Road North Lane 1)	Infinite Saturation Flow						Inf	Inf
8/1 (Oxhey Road South Lane 1)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Scenario 1: '2030 + Dev AM' (FG1: '2030 + Dev AM', Plan 1: 'Network Control Plan 1')

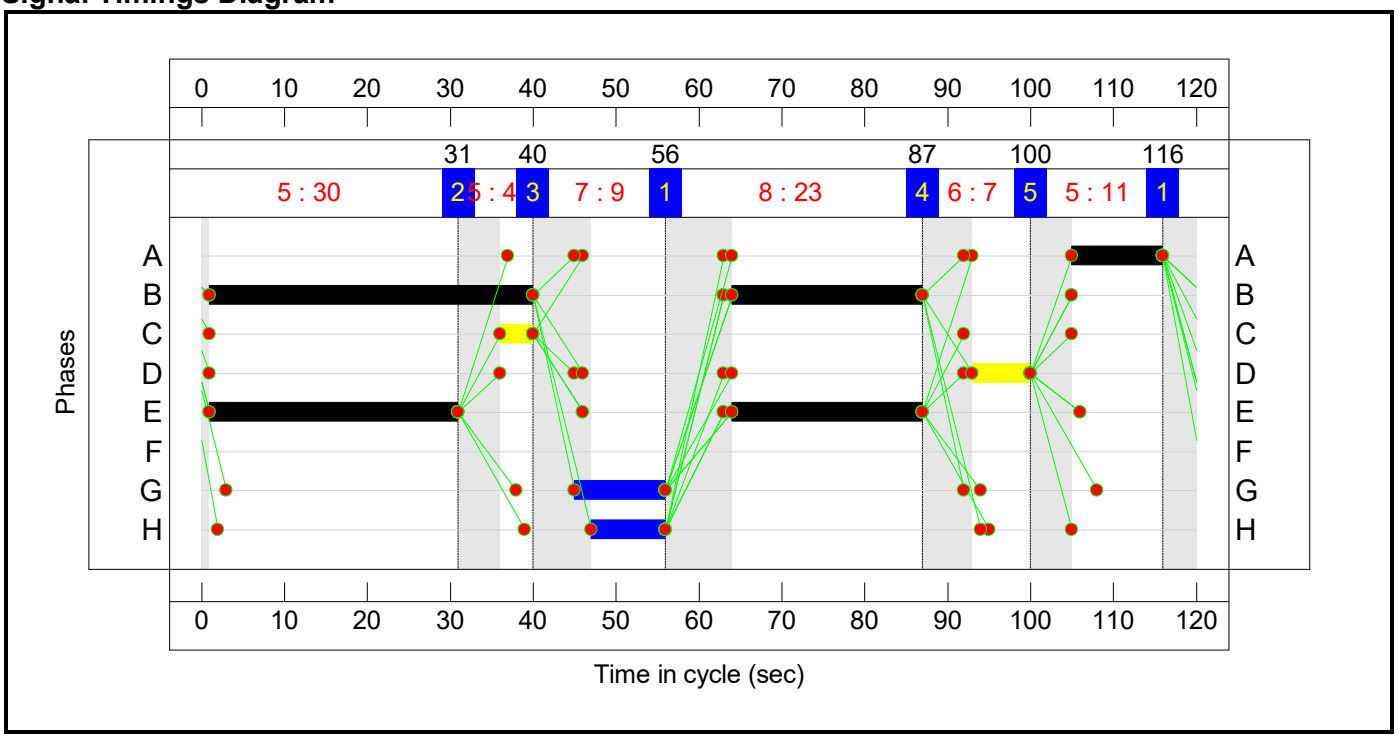
Stage Sequence Diagram



Stage Timings

Stage	1	2	3	1	4	5
Duration	30	4	9	23	7	11
Change Point	116	31	40	56	87	100

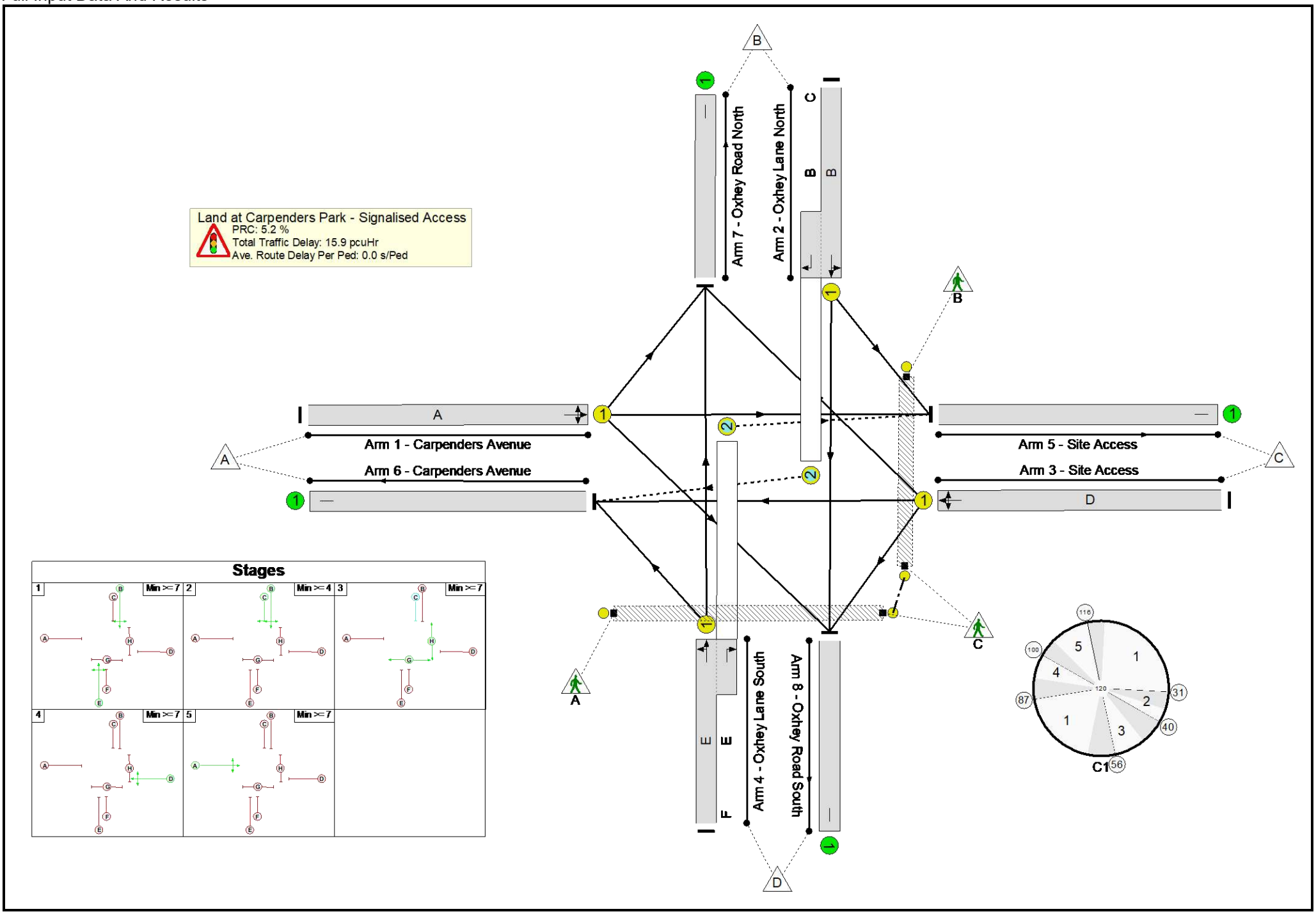
Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram

Full Input Data And Results



Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Site Access Junction Modelling	-	-	**N/A**	-	-		-	-	-	-	-	-	**85.6%**
Land at Carpenders Park - Signalised Access	-	-	**N/A**	-	-		-	-	-	-	-	-	**85.6%**
1/1	Carpenders Avenue Ahead Left Right	U	N/A	N/A	A		1	11	-	135	1689	169	79.9%
2/1+2/2	Oxhey Lane North Left Right Ahead	U+O	N/A	N/A	B	C	2	62	4	773	1912:1670	946+108	73.4 : 73.4%
3/1	Site Access Ahead Right Left	U	N/A	N/A	D		1	7	-	96	1683	112	85.6%
4/1+4/2	Oxhey Lane South Right Left Ahead	U+O	N/A	N/A	E	F	2	53	0	695	1912:1665	845+24	80.0 : 80.0%
5/1	Site Access	U	N/A	N/A	-		-	-	-	41	Inf	Inf	0.0%
6/1	Carpenders Avenue	U	N/A	N/A	-		-	-	-	128	Inf	Inf	0.0%
7/1	Oxhey Road North	U	N/A	N/A	-		-	-	-	764	Inf	Inf	0.0%
8/1	Oxhey Road South	U	N/A	N/A	-		-	-	-	766	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	G		1	11	-	0	-	6600	0.0%
Ped Link: P2	Unnamed Ped Link	-	N/A	-	H		1	9	-	0	-	5400	0.0%

Full Input Data And Results

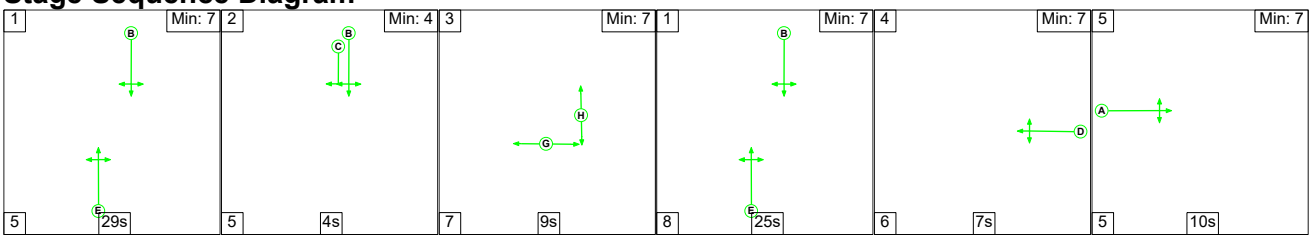
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Site Access Junction Modelling	**-**	**-**	**67**	**7**	**24**	**8.4**	**7.4**	**0.1**	**15.9**	**-**	**-**	**-**	**-**
Land at Carpenders Park - Signalised Access	**-**	**-**	**67**	**7**	**24**	**8.4**	**7.4**	**0.1**	**15.9**	**-**	**-**	**-**	**-**
1/1	135	135	-	-	-	2.0	1.8	-	3.8	100.8	4.4	1.8	6.2
2/1+2/2	773	773	53	7	19	2.3	1.4	0.1	3.7	17.2	10.8	1.4	12.2
3/1	96	96	-	-	-	1.5	2.3	-	3.8	141.9	3.1	2.3	5.5
4/1+4/2	695	695	14	0	5	2.7	2.0	0.0	4.6	24.0	9.9	2.0	11.9
5/1	41	41	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	128	128	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	764	764	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	766	766	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	0.0	0.0	-	-	0.0
Ped Link: P2	0	0	-	-	-	-	-	-	0.0	0.0	-	-	0.0

C1 PRC for Signalled Lanes (%): 5.2 Total Delay for Signalled Lanes (pcuHr): 15.90 Cycle Time (s): 120
PRC Over All Lanes (%): 5.2 Total Delay Over All Lanes(pcuHr): 15.90

Full Input Data And Results

Scenario 2: '2030 + Dev PM' (FG2: '2030 + Dev PM', Plan 1: 'Network Control Plan 1')

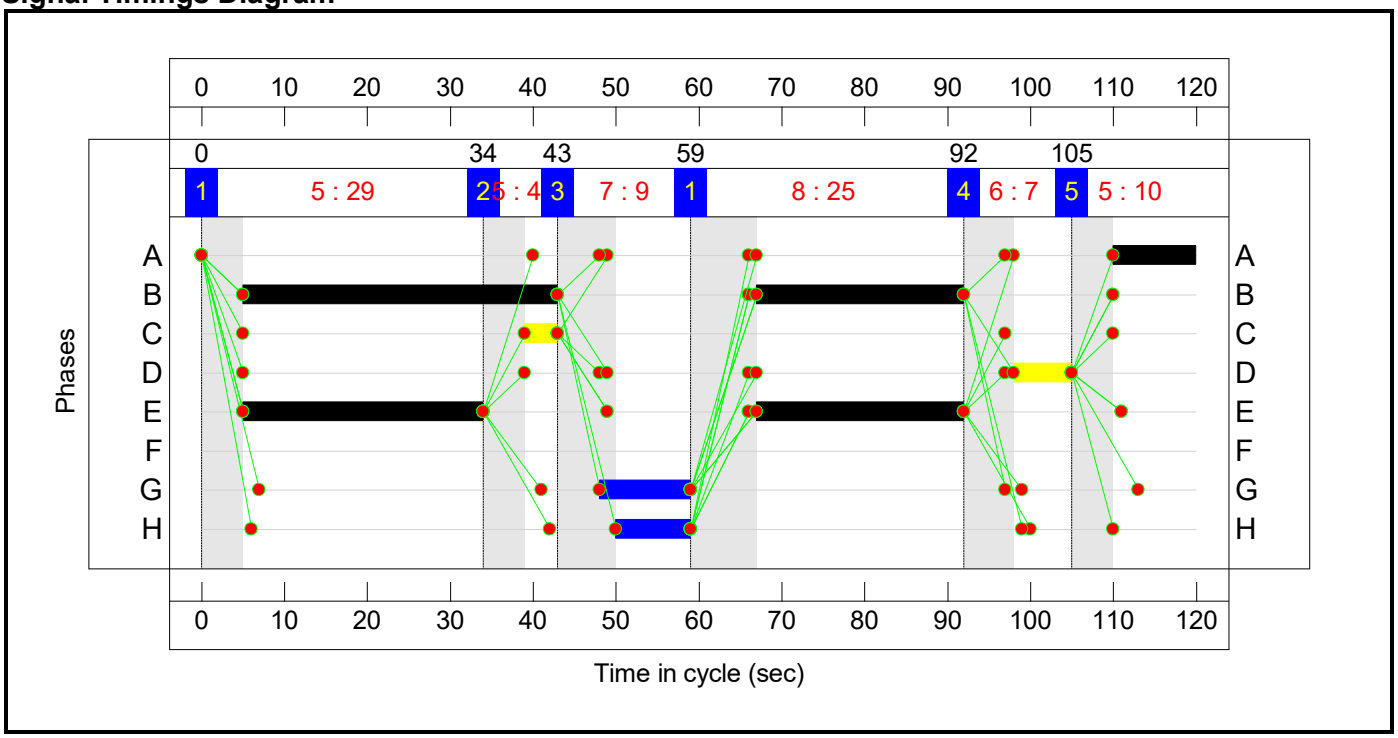
Stage Sequence Diagram



Stage Timings

Stage	1	2	3	1	4	5
Duration	29	4	9	25	7	10
Change Point	0	34	43	59	92	105

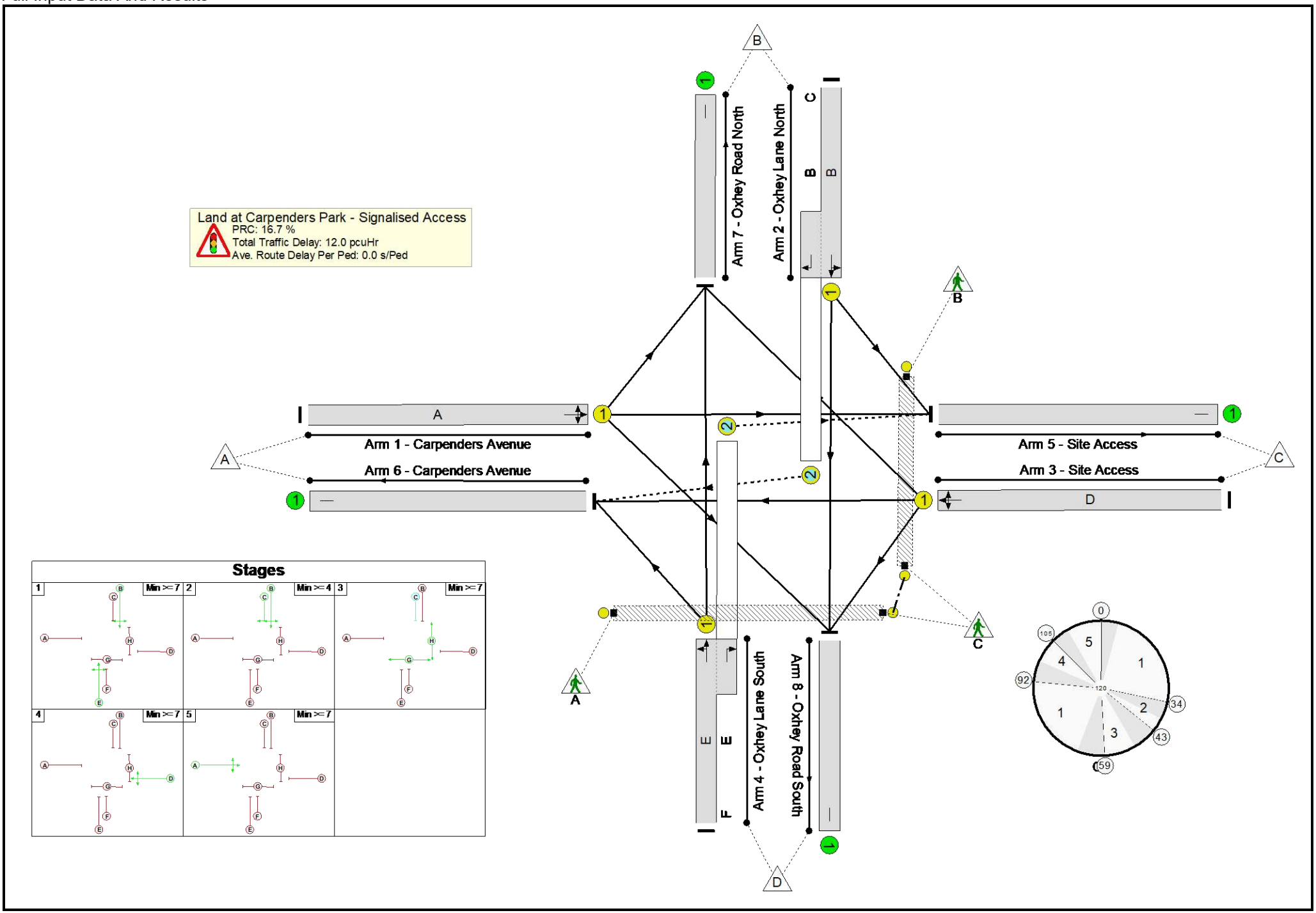
Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram

Full Input Data And Results



Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Site Access Junction Modelling	-	-	**N/A**	-	-		-	-	-	-	-	-	**77.1%**
Land at Carpenders Park - Signalised Access	-	-	**N/A**	-	-		-	-	-	-	-	-	**77.1%**
1/1	Carpenders Avenue Ahead Left Right	U	N/A	N/A	A		1	10	-	121	1711	157	77.1%
2/1+2/2	Oxhey Lane North Left Right Ahead	U+O	N/A	N/A	B	C	2	63	4	797	1904:1670	915+165	73.7 : 73.7%
3/1	Site Access Ahead Right Left	U	N/A	N/A	D		1	7	-	44	1692	113	39.0%
4/1+4/2	Oxhey Lane South Right Left Ahead	U+O	N/A	N/A	E	F	2	54	0	675	1904:1665	836+51	76.1 : 76.1%
5/1	Site Access	U	N/A	N/A	-		-	-	-	87	Inf	Inf	0.0%
6/1	Carpenders Avenue	U	N/A	N/A	-		-	-	-	186	Inf	Inf	0.0%
7/1	Oxhey Road North	U	N/A	N/A	-		-	-	-	664	Inf	Inf	0.0%
8/1	Oxhey Road South	U	N/A	N/A	-		-	-	-	700	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	G		1	11	-	0	-	6600	0.0%
Ped Link: P2	Unnamed Ped Link	-	N/A	-	H		1	9	-	0	-	5400	0.0%

Full Input Data And Results

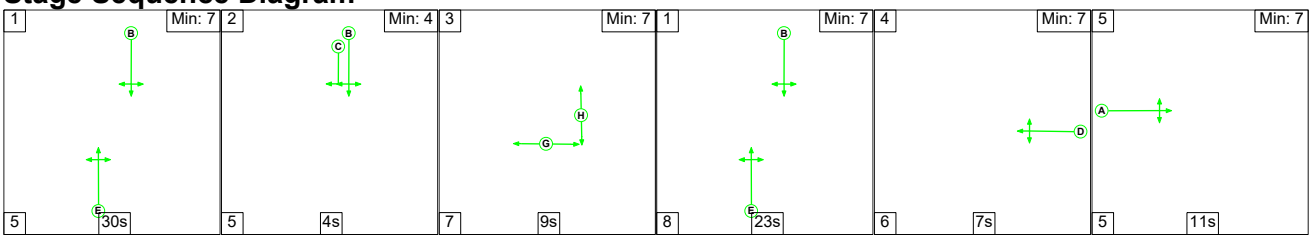
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Site Access Junction Modelling	**-**	**-**	**115**	**11**	**35**	**7.1**	**4.8**	**0.1**	**12.0**	**-**	**-**	**-**	**-**
Land at Carpenders Park - Signalised Access	**-**	**-**	**115**	**11**	**35**	**7.1**	**4.8**	**0.1**	**12.0**	**-**	**-**	**-**	**-**
1/1	121	121	-	-	-	1.8	1.6	-	3.3	99.5	3.9	1.6	5.5
2/1+2/2	797	797	84	11	27	2.2	1.4	0.1	3.7	16.7	10.4	1.4	11.8
3/1	44	44	-	-	-	0.7	0.3	-	1.0	79.6	1.4	0.3	1.7
4/1+4/2	675	675	30	0	9	2.4	1.6	0.0	4.0	21.5	8.9	1.6	10.5
5/1	87	87	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	186	186	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	664	664	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	700	700	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	0.0	0.0	-	-	0.0
Ped Link: P2	0	0	-	-	-	-	-	-	0.0	0.0	-	-	0.0

C1 PRC for Signalled Lanes (%): 16.7 Total Delay for Signalled Lanes (pcuHr): 12.03 Cycle Time (s): 120
PRC Over All Lanes (%): 16.7 Total Delay Over All Lanes(pcuHr): 12.03

Full Input Data And Results

Scenario 3: '2030 + Dev (Vision) AM' (FG3: '2030 + Dev (Vision) AM', Plan 1: 'Network Control Plan 1')

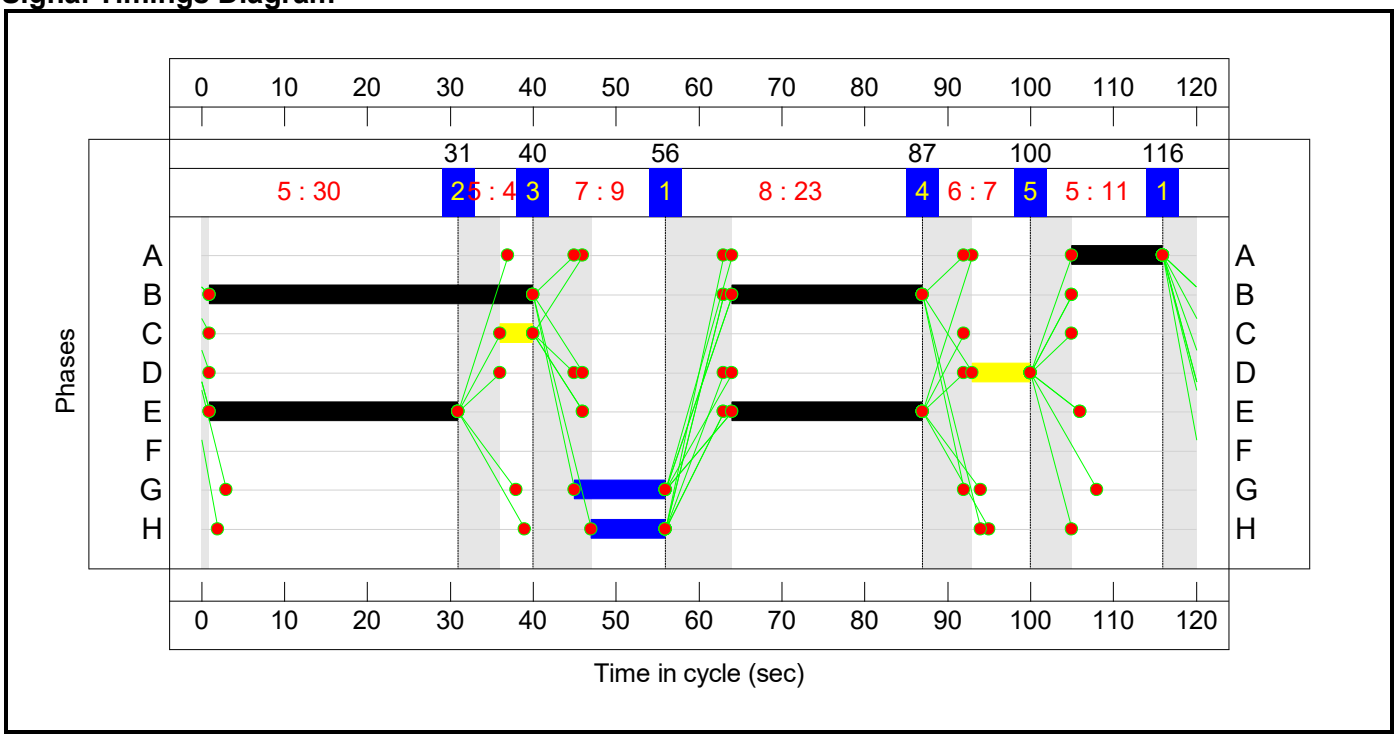
Stage Sequence Diagram



Stage Timings

Stage	1	2	3	1	4	5
Duration	30	4	9	23	7	11
Change Point	116	31	40	56	87	100

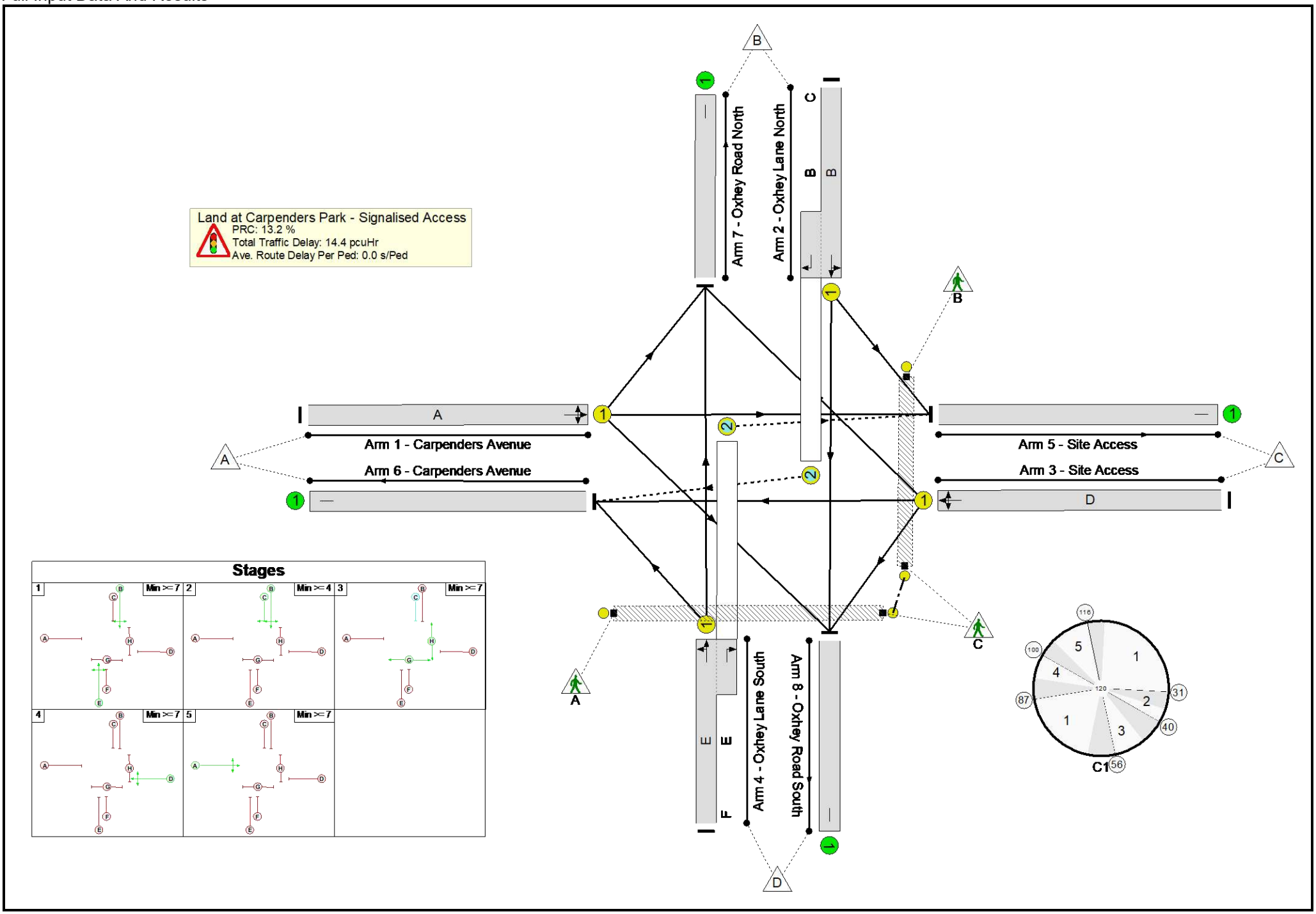
Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram

Full Input Data And Results



Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Site Access Junction Modelling	-	-	**N/A**	-	-		-	-	-	-	-	-	**79.5%**
Land at Carpenders Park - Signalised Access	-	-	**N/A**	-	-		-	-	-	-	-	-	**79.5%**
1/1	Carpenders Avenue Ahead Left Right	U	N/A	N/A	A		1	11	-	134	1687	169	79.4%
2/1+2/2	Oxhey Lane North Left Right Ahead	U+O	N/A	N/A	B	C	2	62	4	769	1914:1670	946+108	73.0 : 73.0%
3/1	Site Access Ahead Right Left	U	N/A	N/A	D		1	7	-	81	1683	112	72.2%
4/1+4/2	Oxhey Lane South Right Left Ahead	U+O	N/A	N/A	E	F	2	53	0	690	1912:1665	850+18	79.5 : 79.5%
5/1	Site Access	U	N/A	N/A	-		-	-	-	31	Inf	Inf	0.0%
6/1	Carpenders Avenue	U	N/A	N/A	-		-	-	-	127	Inf	Inf	0.0%
7/1	Oxhey Road North	U	N/A	N/A	-		-	-	-	757	Inf	Inf	0.0%
8/1	Oxhey Road South	U	N/A	N/A	-		-	-	-	759	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	G		1	11	-	0	-	6600	0.0%
Ped Link: P2	Unnamed Ped Link	-	N/A	-	H		1	9	-	0	-	5400	0.0%

Full Input Data And Results

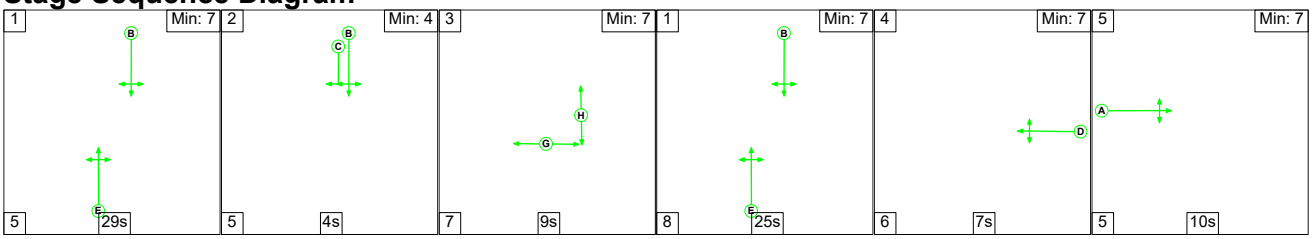
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Site Access Junction Modelling	**-**	**-**	**63**	**7**	**23**	**8.1**	**6.2**	**0.1**	**14.4**	**-**	**-**	**-**	**-**
Land at Carpenders Park - Signalised Access	**-**	**-**	**63**	**7**	**23**	**8.1**	**6.2**	**0.1**	**14.4**	**-**	**-**	**-**	**-**
1/1	134	134	-	-	-	2.0	1.8	-	3.7	99.9	4.4	1.8	6.1
2/1+2/2	769	769	53	7	19	2.2	1.3	0.1	3.6	17.1	10.8	1.3	12.1
3/1	81	81	-	-	-	1.2	1.2	-	2.4	108.5	2.6	1.2	3.8
4/1+4/2	690	690	10	0	4	2.7	1.9	0.0	4.6	23.8	9.9	1.9	11.8
5/1	31	31	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	127	127	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	757	757	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	759	759	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	0.0	0.0	-	-	0.0
Ped Link: P2	0	0	-	-	-	-	-	-	0.0	0.0	-	-	0.0

C1 PRC for Signalled Lanes (%): 13.2 Total Delay for Signalled Lanes (pcuHr): 14.37 Cycle Time (s): 120
PRC Over All Lanes (%): 13.2 Total Delay Over All Lanes(pcuHr): 14.37

Full Input Data And Results

Scenario 4: '2030 + Dev (Vision) PM' (FG4: '2030 + Dev (Vision) PM', Plan 1: 'Network Control Plan 1')

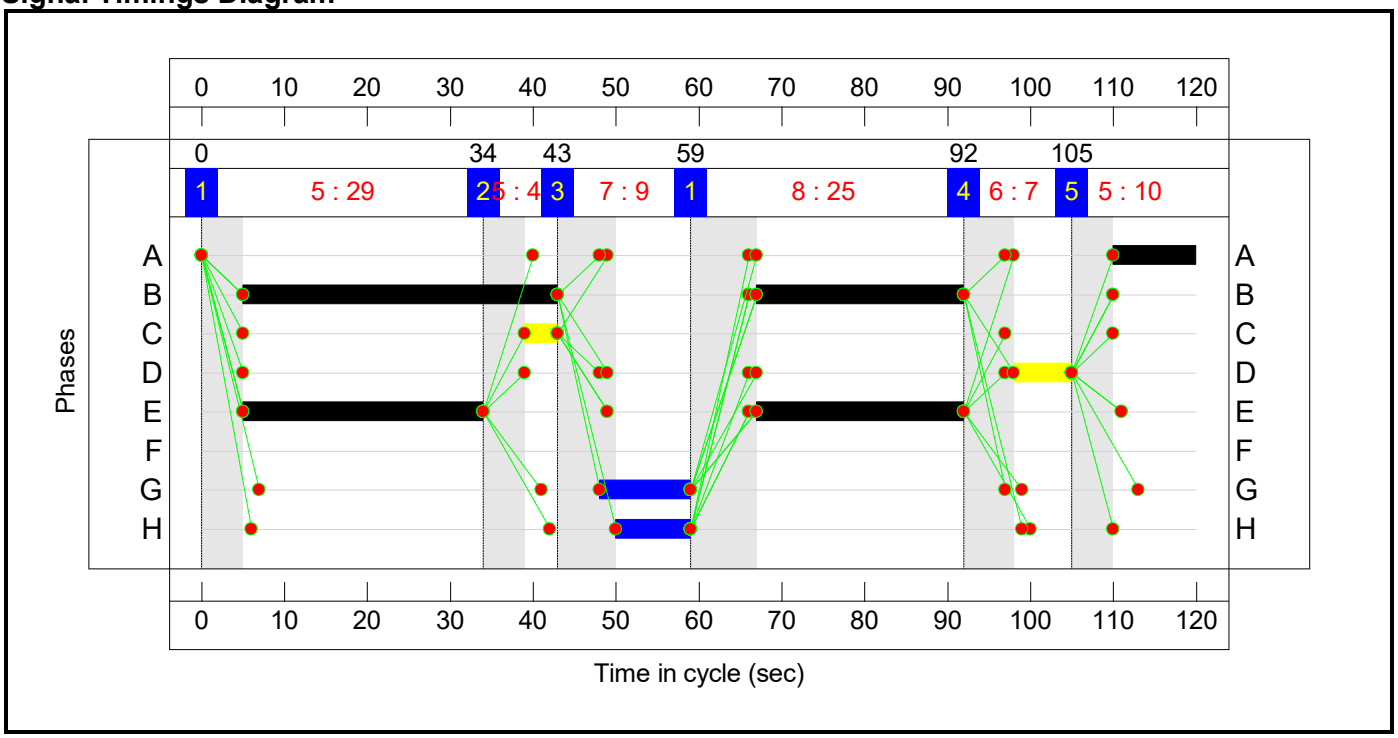
Stage Sequence Diagram



Stage Timings

Stage	1	2	3	1	4	5
Duration	29	4	9	25	7	10
Change Point	0	34	43	59	92	105

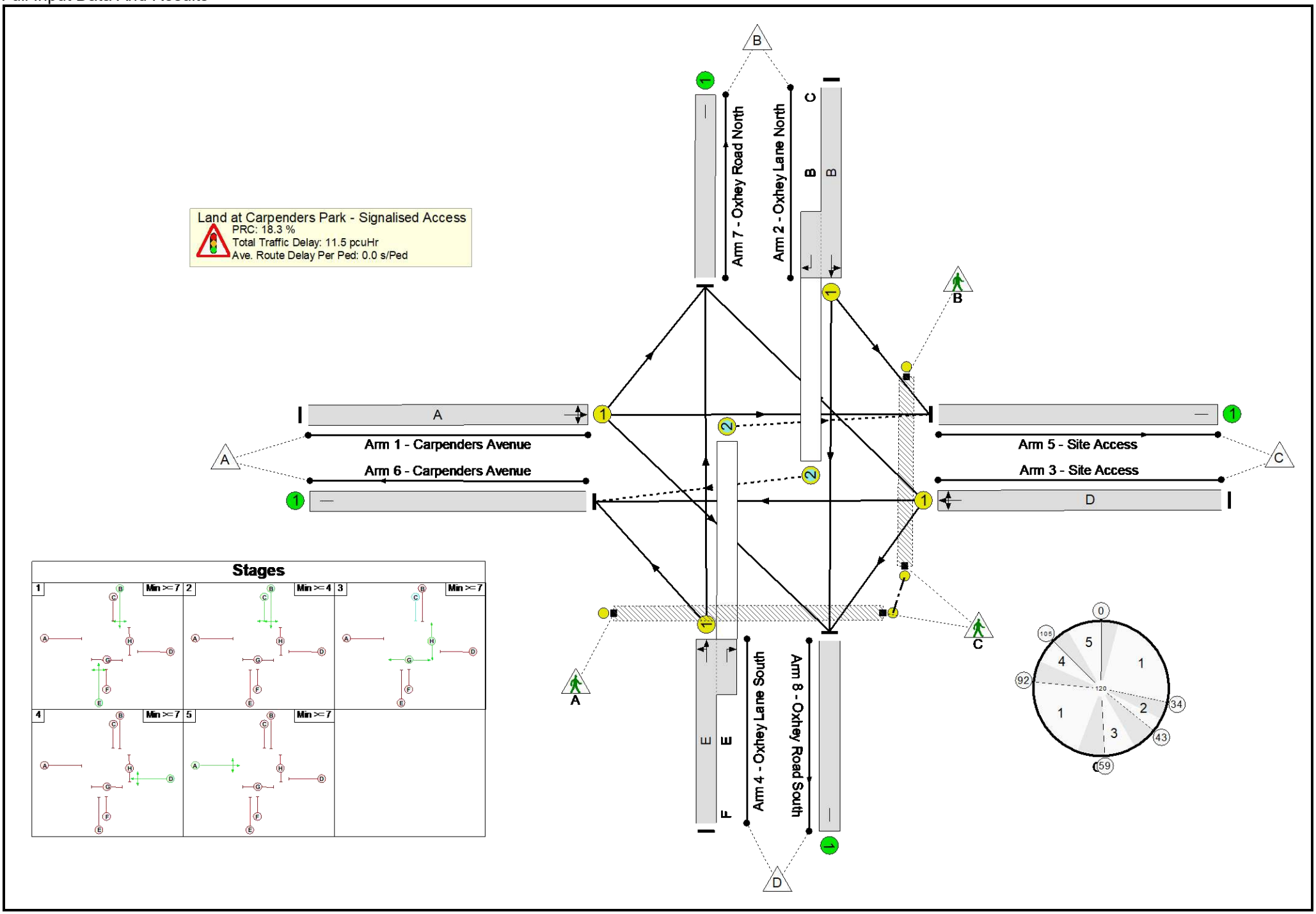
Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram

Full Input Data And Results



Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Site Access Junction Modelling	-	-	**N/A**	-	-		-	-	-	-	-	-	**76.1%**
Land at Carpenders Park - Signalised Access	-	-	**N/A**	-	-		-	-	-	-	-	-	**76.1%**
1/1	Carpenders Avenue Ahead Left Right	U	N/A	N/A	A		1	10	-	119	1707	156	76.1%
2/1+2/2	Oxhey Lane North Left Right Ahead	U+O	N/A	N/A	B	C	2	63	4	790	1907:1670	915+167	73.0 : 73.0%
3/1	Site Access Ahead Right Left	U	N/A	N/A	D		1	7	-	34	1692	113	30.1%
4/1+4/2	Oxhey Lane South Right Left Ahead	U+O	N/A	N/A	E	F	2	54	0	667	1904:1665	844+41	75.3 : 75.3%
5/1	Site Access	U	N/A	N/A	-		-	-	-	70	Inf	Inf	0.0%
6/1	Carpenders Avenue	U	N/A	N/A	-		-	-	-	185	Inf	Inf	0.0%
7/1	Oxhey Road North	U	N/A	N/A	-		-	-	-	660	Inf	Inf	0.0%
8/1	Oxhey Road South	U	N/A	N/A	-		-	-	-	695	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	G		1	11	-	0	-	6600	0.0%
Ped Link: P2	Unnamed Ped Link	-	N/A	-	H		1	9	-	0	-	5400	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Site Access Junction Modelling	**-**	**-**	**109**	**11**	**33**	**6.8**	**4.5**	**0.1**	**11.5**	**-**	**-**	**-**	**-**
Land at Carpenders Park - Signalised Access	**-**	**-**	**109**	**11**	**33**	**6.8**	**4.5**	**0.1**	**11.5**	**-**	**-**	**-**	**-**
1/1	119	119	-	-	-	1.8	1.5	-	3.2	97.8	3.9	1.5	5.3
2/1+2/2	790	790	85	11	26	2.2	1.3	0.1	3.6	16.4	10.3	1.3	11.6
3/1	34	34	-	-	-	0.5	0.2	-	0.7	76.1	1.1	0.2	1.3
4/1+4/2	667	667	24	0	7	2.4	1.5	0.0	3.9	21.2	8.9	1.5	10.4
5/1	70	70	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	185	185	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	660	660	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	695	695	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	0.0	0.0	-	-	0.0
Ped Link: P2	0	0	-	-	-	-	-	-	0.0	0.0	-	-	0.0

C1 PRC for Signalled Lanes (%): 18.3 Total Delay for Signalled Lanes (pcuHr): 11.48 Cycle Time (s): 120
PRC Over All Lanes (%): 18.3 Total Delay Over All Lanes(pcuHr): 11.48

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SG1 2ST

Response to Planning application from Hertfordshire County Council (T and CP GDP Order 2015)

Director of Planning
Three Rivers District Council
Three Rivers House
Northway
Rickmansworth
Hertfordshire
WD3 1RL

District ref: 25/1020/OUT
HCC ref: TR/25536/2025
HCC received: 10 September 2025
Area manager: Alan Story
Case officer: Graham Burrell

Location
Land East Of Oxhey Lane, Oxhey Lane, Carpenders Park

Application type
Outline

Proposal
AMENDED PROPOSAL
Outline planning application for up to 256 homes (C3 use class) (including affordable nd self/custom build housing), housing with care (C2 use class), a children's home (for looked after children) (C2 use class) together with associated access (including off-site highway works), parking, open space and landscaping (appearance, layout, landscaping and scale as reserved matters)

Recommendation
Notice is given under article 22 of the Town and Country Planning (Development Management Procedure) (England) Order 2015 that Hertfordshire County Council as Highway Authority recommends that permission be refused for the following reasons:

REASONS AND COMMENTS

HCC highway comments were provided on 6 August 2025. It was recommended that planning permission be refused. The reasons were summarised as follows:

“i. No audit has been provided on the quality of cycling and walking routes in the vicinity of the proposed development. The sustainability of the proposal has therefore not been properly evaluated. This is considered contrary to paragraphs 109-118 of the NPPF and Policies 1, 5, 6, 7 and 8 of Hertfordshire’s Local Transport Plan, 2018.

ii. The lack of bus services in the vicinity of the site has not been addressed. This further questions the sustainability of the proposal. This is considered contrary to paragraphs 109-118 of the NPPF and Policies 1, 5, 6, 7, 8 and 9 of Hertfordshire's Local Transport Plan, 2018.

iii. Trip generation, distribution and assignments provided in the TA are not acceptable. This is considered contrary to paragraph 118 of the NPPF which requires a vision-led transport assessment so that the likely impacts of the proposal can be assessed and monitored.

iv. No safety audit (or Designer's Response) has been provided in respect to the two proposed new accesses. This is considered contrary to paragraph 118 of the NPPF which requires a vision-led transport assessment so that the likely impacts of the proposal can be assessed and monitored.

v. No assessment has been made on the impact of the development on street trees. This is considered contrary to paragraph 118 of the NPPF which requires a vision-led transport assessment so that the likely impacts of the proposal can be assessed and monitored.

vi. The TA does not provide a gradient profile for the proposed new road onto the A4008. This is considered contrary to paragraph 118 of the NPPF which requires a vision-led transport assessment so that the likely impacts of the proposal can be assessed and monitored.

vii. Visibility splays from the junction are not provided in the TA. This is considered contrary to paragraph 118 of the NPPF which requires a vision-led transport assessment so that the likely impacts of the proposal can be assessed and monitored.

viii. The proposed access onto the A4008 is considered contrary to policy 5(f) of HCC's Local Transport Plan, 2018."

A "Response to HCC Comments" dated 9 September 2025 has now been received. This is referred to as the "Response document" below. Comments are provided below on each point raised.

i. Audit of walking and cycling routes
The Response document notes that the TA provided "an overview of the walking and cycling routes between the site and local facilities" and now provides in Appendix B "a more detailed walking and cycling audit."

The audit examines three routes:

Route 1 – To St. Meryl School & Little hearts pre-school
Route 2 – To bus stops on By The Wood
Route 3 – To Carpenders Park station and South Oxhey local centre

The results of the audit suggest potential improvements which include:

- Installation of tactile paving at uncontrolled crossing points along Carpenders Avenue, Foxleys, The Mead and Gibbs Couch.

- Footway widening into existing grass verges on Oxhey Lane to ensure that the footways are wide enough to walk two side-by-side.

- Resurface existing footways on Oxhey Lane and Carpenders Avenue to improve accessibility and comfort.

The Response document however refers to making a contribution to “support necessary active travel improvements through a Section 106 contribution”. This is not accepted. If potential improvements identified in the audit are considered “necessary” to support the development they should be secured against any planning approval as a “Strand 1 obligation” by way of an appropriate planning condition.

The applicant states that it would welcome the opportunity to discuss improvements with HCC. This appears to be a useful way forward. HCC would welcome a meeting with the applicant and the LPA.

ii. Lack of bus services

The TA claimed a unique status for this site stating (in paragraph 6.4.1) that “the excellent public transport connections are of a different character to sites outside Greater London”. HCC comments noted that the nearest train station was is in excess of 800 metres from the site. It was also noted that there are no bus services available within 400 metres (contrary to Part 1, Chapter 5, paragraph 7.9 of Hertfordshire’s Place & Movement Planning Design Guidance). Specifically, the train station is approximately 1050 metres from the proposed entrance to the site and the nearest bus stops are at about 700 metres away. HCC highway comments therefore challenged the applicant’s consideration of the site as having “excellent public transport connections”.

In respect to bus services, the Response document states that “It is acknowledged that there are opportunities to uplift the level of bus accessibility in the local area, and that a service to complement the existing number 328 service may be beneficial for future residents of the site”.

HCC’s public transport team propose a new service - to complement Service 328 - from South Oxhey to Watford, and extending it to the new site. This new service would operate from the site via A4008 and B4542 down to Prestwick Road, then via a variation of the current 328 route into Watford. There would be the option of extending this up to Watford Junction. An hourly service should be achievable with two vehicles, at an estimated annual cost of £350k.

HCC is therefore seeking an index-linked Strand 1 financial contribution of £350k per annum for a period of five years totalling £1,750k. This would need to secured by a Section 106 agreement.

In addition, provision would be required for new bus stop infrastructure. HCC’s public transport team has identified a need for a pair of new stops outside the site to support the potential new service and future proof the site. These would serve both new residents and the nearby care home. They suggest a location between the islands along Oxhey Lane to facilitate safe crossing. It would be useful if the applicant could look at their potential placement by way of a plan. They note the infrastructure that would be sited at each bus stop as follows:

1. **Carpenders Park, Oxhey Lane, Carpenders Avenue**
    - Kassel kerb
    - Bench (*Gladstones*)
    - RTI bus stop pole with RTI screen (*Journeo*)
    - Bus cage
2. **Carpenders Park, Oxhey Lane, opp Carpenders Avenue**
    - Kassel kerb
    - Bench (*Gladstones*)
    - RTI bus stop pole with RTI screen (*Journeo*)
    - Bus cage

To address accessibility, minor improvements are also recommended at the two existing bus stops below:

1. **Carpenders Park, By the Wood, Upper Hitch (21803900)**
    - Kassel kerb required.
2. **Carpenders Park, By the Wood, opposite Upper Hitch (21802940)**
    - Kassel kerb required.

HCC would also seek to secure the bus stop infrastructure proposals detailed above by way of planning condition.

iii. Trip impact assessment

The TA stated that "Multi-modal trip rates have not been directly obtained from the industry standard TRICS database. This is because the site is unique in that it is not within the Greater London boundary, yet it has access to a regular London Overground service linking it to key destinations within Central London and Watford. There are very few sites within TRICS database with similar characteristics, and therefore a representative level of multi-modal trip rates may not be obtained from any multi-modal TRICS outputs." And further noted "the excellent public transport connections."

This was refuted in HCC's comments dated 6 August 2025, which stated that:

"The TA goes further in its claim for the unique status of this site stating (in paragraph 6.4.1) that "the excellent public transport connections are of a different character to sites outside Greater London requiring bespoke multi-modal trip rates for this site." The suggestion of "excellent public transport connections" is not though established in the TA. The railway station at 1km from the site entrance is in excess of 800 metres, a distance often defined as the distance for a "Walkable Neighbourhood".

Bus services are currently not available within the 400 metres detailed in HCC's P&MPDG. It is difficult to see how the applicant considers the site to have "excellent public transport connections".

Reference to "excellent public transport" is often aligned to a PTAL rating of 6. If the applicant is making this specific claim, evidence should be provided to support this."

The Response document does not seek to support the previously stated “excellent public transport” by means of an established assessment methodology. As noted in previous HCC comments the site would not be considered by HCC to have excellent public transport connectivity. Rather, there is a need to consider necessary public transport improvements as detailed under "Bus services" above.

In respect to trip impact assessment, paragraph 4.1.7 of the Response document states that “the multi-modal TRICS data in Table 4.1 has been used to assess the level of trips arising from the proposed development.” Paragraph 4.1.5 of the Response document notes that the TRICS assessment has been updated due to an update being available from TRICS. The residential sites chosen in the updated list are detailed in Appendix D of the Response document. This lists 22 sites all at “Edge of Town” locations. “Edge of Town” appears to be an appropriate location indicator. For the Housing with care and childrens’ home, Table 4.5 in the Response document reproduces Table 6.8 in the TA. Table 4.6 of the Response document shows the total peak hour vehicle flow based on the TRICS assessment.

The Distribution and Assignment detailed in the TA was also questioned by HCC. A simpler “hyper-local” assessment of trip distribution was suggested by HCC to act as - at least - a comparator to the figures derived in the TA. This has been presented in paragraph 4.2.4 of the Response documents and shows fairly close correlation to the previous distribution – reproduced in paragraph 4.2.3 of the Response document. Paragraph 4.2.7 notes that the “distribution of development traffic has been updated to reflect these changes and has been subsequently fed into an updated set of operational assessments.”

The revised trip matrices have been applied to the LINSIG model used in the initial assessment. The outputs are summarised in Table 4.9 (without vision) and Table 4.10 (with vision).

The results of the modelling show that all arms operate within capacity – well below a “Degree of Saturation” of 90% which would signify that the junction was nearing capacity. The results of the modelling are considered acceptable.

iv. Safety audit
The Response document provides a Stage 1 road safety audit and a Designer’s Response. Ten “Problems” are identified. HCC’s road safety team have been requested to review the documentation. It is expected that their examination will be completed shortly. Further comments will then be provided.

v. Trees
The Response documents states “HCC identified a mature oak tree to the north of the proposed site access location. This is identified as T1 in the Tree Protection Plan provided by ACD Environmental Ltd along with the Root Protection Area (RPA) of the tree. The plan was submitted with the application along with an Arboricultural Impact Assessment. ACD have reviewed the site access against the access design and identified the footway would lead to 2.22% incursion into the RPA. This is a small incursion which could be mitigated through appropriate construction methods.”

This satisfactorily addresses the issue raised by HCC highways.

vi. Gradient profile
The applicant’s Response document states that “The detailed alignment of the access road is not determined at this stage as the application is in outline”.

In order to determine that the access can be constructed at the intended location, the gradient of the access road into the site is considered a material consideration at Outline stage. The Response

document states that: “the initial 15m of the access road has been designed with a 4% gradient in line with Design Manual for Roads and Bridges (DMRB)””and “The remainder of the access could be designed at a gradient of 6% in accordance with DMRB or 5% in accordance with HCC design guidance.”

This confirms that an HCC condition for maximum gradient of 1 in 20 can be applied to the proposed main access road into the development.

vii. Visibility splays
The Response document confirms visibility splays are provided in their drawing no. ITL200107-GA-002 Rev E which has been updated plan to show the visibility splay from the proposed new access road. As noted in iv above the road safety audit team will be reviewing the documentation, including the road safety audit and Designer’s response which would include visibility issues. This view should be provided shortly.

viii. Policy 5(f)
As noted in HCC comments dated 6 August, 2025, “A vehicular access is proposed directly onto the A4008. Policy 5(f) of HCC’s Local Transport Plan 2018 states that HCC as HA will “Only consider new accesses onto primary and main distributor roads where special circumstances can be demonstrated in favour of the proposals”. In this respect the proposal was considered by HCC’s Strategic Transport Infrastructure Board (STIB) on 5 March 2025. The view of STIB was that on the basis that this site does not have Local Plan designation it should not be deemed to have special circumstances at the current time.”

HCC maintains its objection in this respect. It is noted that the Response document states that “…if development is acceptable in this location whether through a LP designation or a planning application that would constitute special circumstances.” It is acknowledged that the LPA will need to consider policy 5(f) against this and other considerations.

Conclusion
The documentation including the road safety audit and Designer’s response is to be reviewed by HCC’s safety team. These will be provided as additional comments shortly.

The applicant has proposed a meeting with HCC highways and the LPA. This is welcome and should allow any outstanding matters to be addressed.

Signed
Graham Burrell

1 October 2025

APPENDIX B. SECOND POST-APPLICATION TECHNICAL RESPONSE & CORRESPONDENCE

i-Transport LLP
33 Queen Street, London, EC4R 1AP

Tel: 0204 531 3660

Land east of Oxhey Lane, Carpenders Park: 2nd Response to HCC Comments

Ref: PH/RW/ITL200107-008 TN
Date: 16 October 2025

SECTION 1 Introduction

1.1 Burlington Property Group proposes to develop Land east of Oxhey Lane, Carpenders Park to provide a residential development of 256 homes, housing with care and a children's home. A planning application was submitted to Three Rivers District Council (TRDC) for the proposal in July 2025 *(TRDC application reference: 25/1020/OUT)*.

1.2 Hertfordshire County Council (HCC) as the local highway authority provided a response to the application dated 6 August 2025. i-Transport LLP subsequently provided a technical note (*report reference: ITL200107-006 TN*) addressing the matters raised which was submitted on 9 September 2025.

1.3 HCC has since provided a response (to the technical note) dated 1 October 2025. This technical note relates to the request for bus contributions set out in the HCC response.

1.4 Bus Strategy

1.4.1 With respect to buses, the HCC response set out that improvements to bus services will be required by way of Section 106 contributions. The HCC response states:

> ***'HCC's public transport team propose a new service - to complement Service 328 - from South Oxhey to Watford, and extending it to the new site. This new service would operate from the site via A4008 and B4542 down to Prestwick Road, then via a variation of the current 328 route into Watford. There would be the option of extending this up to Watford Junction. An hourly service should be achievable with two vehicles, at an estimated annual cost of £350k.***
>
> ***HCC is therefore seeking an index-linked Strand 1 financial contribution of £350k per annum for a period of five years totalling £1,750k. This would need to secured by a Section 106 agreement.'***

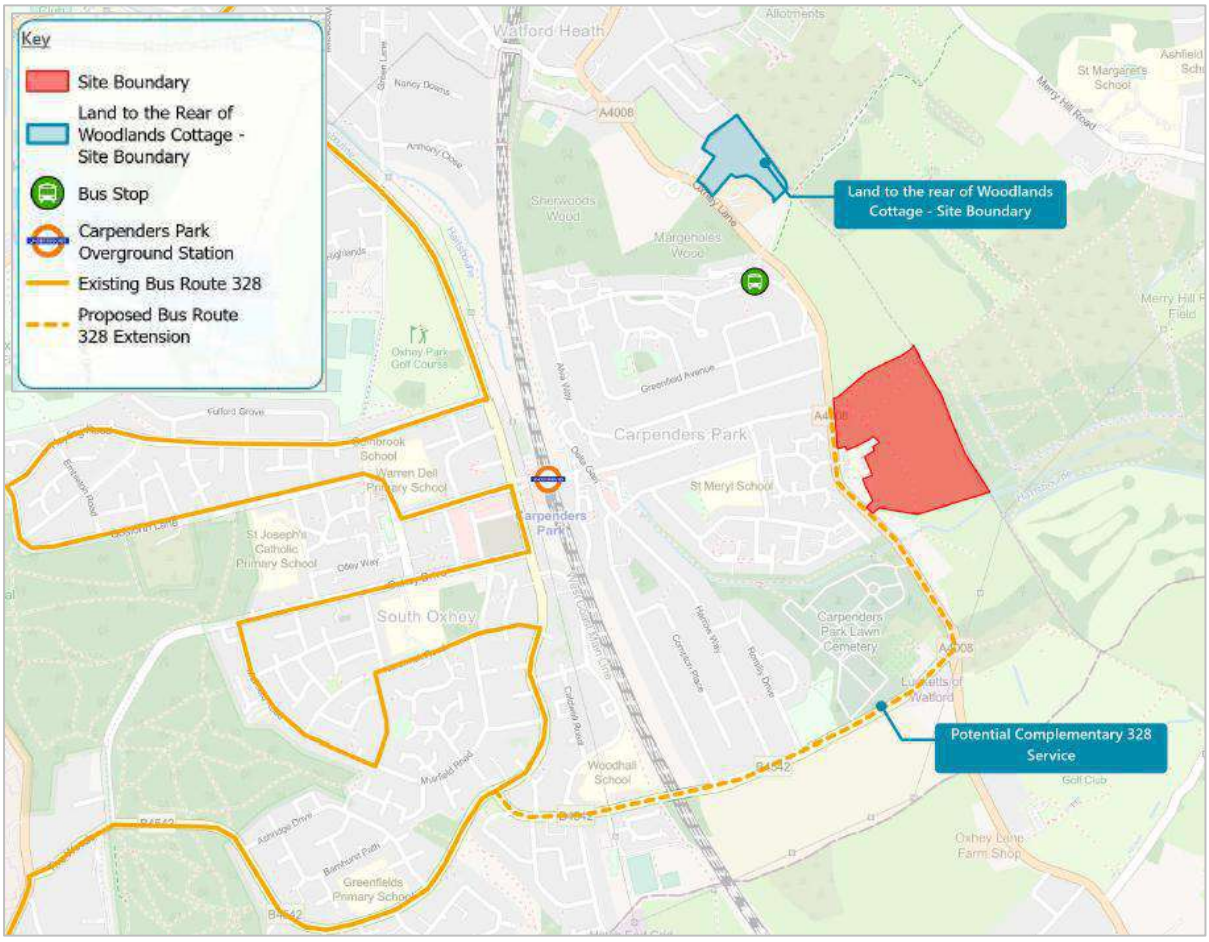
Option A - Complementary 328 Service

1.4.2 The 328 service routes between Watford Junction and Watford High Street to Northwood, via South Oxhey. It currently operates an hourly service in both directions.

1.4.3 The HCC proposal would provide a new service to complement the 328 from South Oxhey to Watford, and extending it to the Site. This new service would operate from the site via A4008 and B4542 down to Prestwick Road, then via a variation of the current 328 route into Watford.

1.4.4 The potential route is shown in **Figure 1**, an extract of which is provided below.

Figure 1: Potential complementary 328 service



1.4.5 This route would offer some benefit to future residents of the Site for journeys to South Oxhey, although the majority of services in South Oxhey are within a 'reasonable' walking distance. Bus journey times to Watford High Street are likely to be around 35-40 minutes due to the indirect route through South Oxhey. This service would also offer limited benefit to existing users.

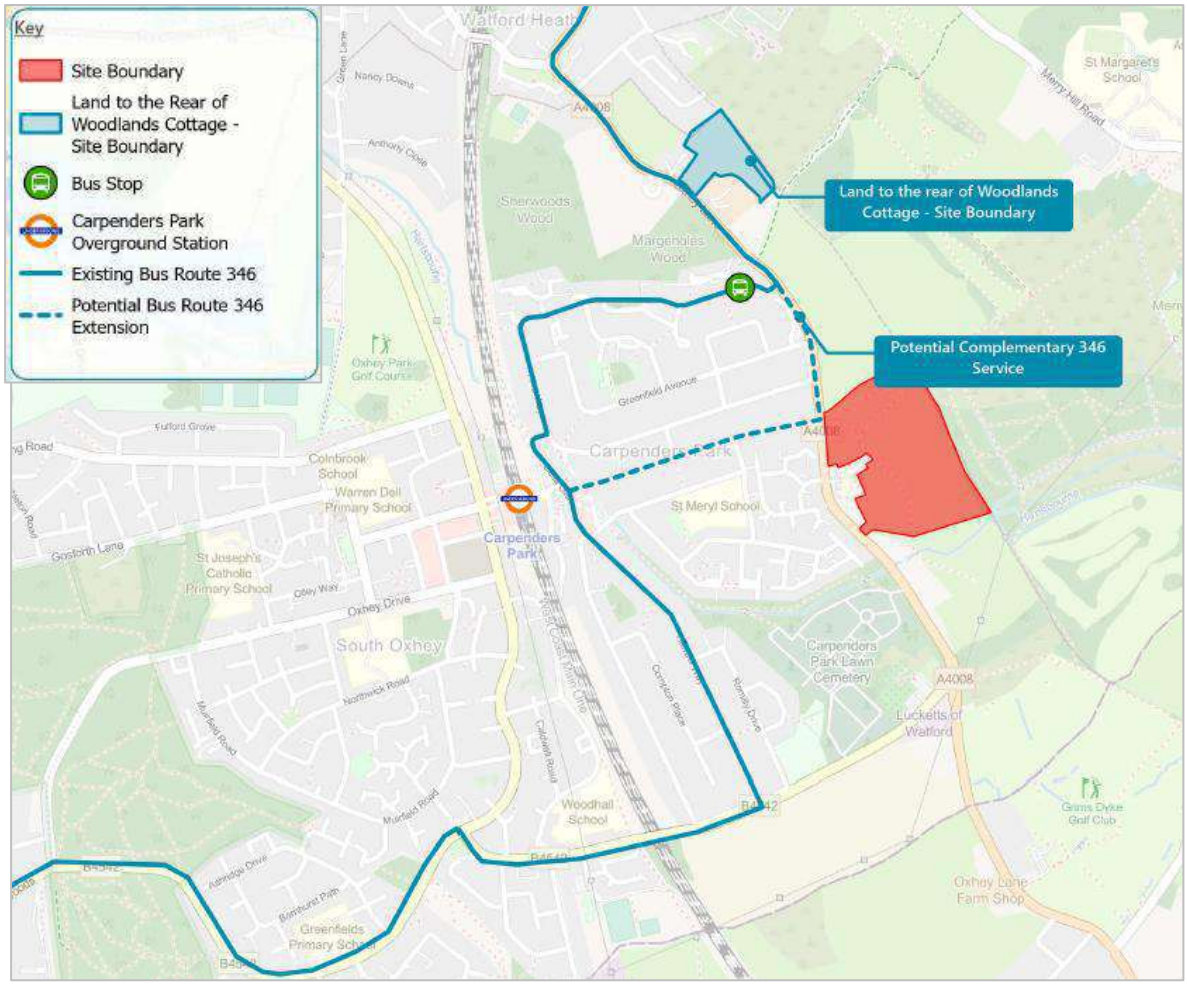
1.4.6 Residents are more likely to use the 346 service from By The Wood that routes north on Oxhey Lane. This route is more direct and bus journey times to Watford High Street are around 20 minutes.

Option B (Alternative Option) - Complementary 346 service

1.4.7 An alternative solution could therefore be to provide a complementary service to the 346. The 346 service currently routes between Watford High Street and Northwood routing through Carpenders Park via By The Wood, Delta Gain and Harrow Way. It provides a similar service to the 328 with an hourly service in each direction.

1.4.8 A complementary service to the 346 could route via Carpenders Avenue and the Site on Oxhey Lane, providing improved provision for Carpenders Park itself and future residents of the Site. This is shown in Figure 2, an extract of which is provided below.

Figure 2: Potential complementary 346 service



1.4.9 Carpenders Avenue is wide (circa 7.3m) and generally straight and has direct access to the A4008, and should therefore be well suited to support a bus route. It also serves a large number of existing housing and could improve the bus catchment area.

Land to the Rear of Woodlands Cottage, Oxhey Lane

1.4.10 It is noted that a planning application has been submitted for 96 residential units at Land to the Rear of Woodlands Cottage (*TRDC ref: 25/1055/FUL*), located circa 1.0km north of the Site. This Site is also proposed to be accessed via Oxhey Lane, and is within 480m of southbound bus stops and 700m of a northbound bus stops for the 346 bus service. It should be noted however that the above site is circa 1.7km walk from Carpenders Park Overground Station, which is substantially further than the distance from land east of Oxhey Lane.

1.4.11 A complementary and more frequent service of the 346 would provide benefits for future residents of land east of Oxhey Lane, future residents of land to the rear of Woodlands Cottage, and existing residents of Carpenders Park.

1.4.12 It is likely that a service of this type would offer more overall benefit than a complementary 328 service and could reasonably be supported by contributions from land to the rear of Woodlands Cottage.

Section 106 contributions

1.4.13 HCC have suggested that a complementary bus service would have an estimated annual cost of £350k, and are seeking this for a period of five years totalling £1,750,000.

1.4.14 Paragraph 58 of the National Planning Policy Framework (NPPF) states that:

> ***'Planning obligations must only be sought where they meet all the following tests:***
>
> ***a) Necessary to make the development acceptable in planning terms'***
>
> ***b) Directly related to the development; and***
>
> ***c) Fairly and reasonably related in scale and kind to the development.***

1.4.15 Contributions to any new bus services required to make the development acceptable in planning terms should therefore be proportionate to the scale of the proposed development.

1.4.16 The request for a contribution of £1.75m is unlikely to meet the above tests, particularly when the suggested complementary 328 service offers limited benefit to future residents of the site. A complementary 346 service could offer far more benefit to future residents of Land East of Oxhey Lane as well as those on Land to the rear of Woodlands Cottage. In addition there could be benefits for existing residents which should be taken into account when determining an appropriate contribution.

1.4.17 This would provide the ability for each of the developments to make a proportionate contribution towards future bus provision.

1.5 Bus Stop provision

1.5.1 The HCC response also states:

> ***'In addition, provision would be required for new bus stop infrastructure. HCC's public transport team has identified a need for a pair of new stops outside the site to support the potential new service and future proof the site. These would serve both new residents and the nearby care home. They suggest a location between the islands along Oxhey Lane to facilitate safe crossing. It would be useful if the applicant could look at their potential placement by way of a plan.'***

1.5.2 The applicant is willing to support the provision of improved bus stop facilities by way of S106 contributions. Should a complementary 346 service (Option B described above) be deemed appropriate, there are several opportunities to provide bus stops along Carpenders Avenue, where there is sufficient width and length for bus cages that would not block access to driveways and highway verge that could be used to provide Kassel kerb, benches, and bus stop poles.

1.5.3 Similarly, land to the rear of Woodlands Cottage could support new/improved bus stop provision on Oxhey Lane closer to their site providing for existing residents too.

APPENDIX A. BUS SERVICE OPTIONS

i-Transport

Land at Carpenders Park

Potential Bus Strategy - Route 328

ITL200107

Key

- Site Boundary
- Land to the Rear of Woodlands Cottage - Site Boundary
- Bus Stop
- Carpenders Park Overground Station
- Existing Bus Route 328
- Proposed Bus Route 328 Extension

Land to the rear of Woodlands Cottage - Site Boundary

Potential Complementary 328 Service

0 0.7 1.4 km

i-Transport

Land at Carpenders Park

Potential Bus Strategy - Route 346 | ITL200107

Key

- Site Boundary
- Land to the Rear of Woodlands Cottage - Site Boundary
- Bus Stop
- Carpenders Park Overground Station
- Existing Bus Route 346
- Potential Bus Route 346 Extension

Land to the rear of Woodlands Cottage - Site Boundary

Potential Complementary 346 Service

0 0.7 1.4 km

Ronan Wilson

From: Graham Burrell <graham.burrell@hertfordshire.gov.uk>
Sent: 04 November 2025 16:15
To: matthew.roberts@threerivers.gov.uk
Cc: Phil Hamshaw; Nathan Stevenson; Philip Allin; Alan Story; Alice Moore; Steven Gough; Jonny Hill; Ronan Wilson

Subject: RE: Carpenders Park - HCC ref: TR/25536/2025
Attachments: 328a Watford - Oxhey Lane (November 2025).xlsx; Audit Review628.25 Report.pdf

Hello Matthew,

Thank you for arranging our meeting with the applicant for the above site on 20 October, 2025. This followed shortly after a submission by the applicant of its "2nd Response to HCC Comments" dated 16 October, 2025.

At our meeting on 20 October, it was agreed that the "2nd Response to HCC Comments" document would not be regarded as a formal submission but rather as a discussion document seeking to address outstanding transport matters associated with this application.

I believe that three main action points were agreed. Firstly, to examine the issues raised by the applicant on bus service provision. Secondly, to provide a review of the applicant's road safety audit carried out by HCC's road safety team. Thirdly, for the applicant to clarify its view on necessary interventions arising from both their walking and cycling audit and HCC's stated view on bus stop interventions. These are addressed in turn below.

1. Bus service provision
The applicant's TA sought to present the site as having excellent public transport connectivity stating that "the opportunities to use public transport are excellent" and therefore "the proposed development is in accordance with the first test of the NPPF." HCC comments dated 6 August 2025 challenged this view stating that "Carpenders Park railway station is about 1km from the site. It also notes that "the nearest bus stop is circa 700m." HCC's P&MPDG states an expectation all occupied parts of development should be within 400m walking distance of a bus stop or transport hub by public walking route".

HCC's view is that the site does not have "excellent" public transport connectivity; hence the subsequent commentary from HCC seeking to connect the site by an appropriate bus service. The applicant has queried the amount of contribution sought by HCC. This though arises directly from what is considered a necessary intervention to support the development.

The applicant's 2nd Response document presents both the new service proposed by HCC to complement the 328 route, (which I shall refer to below as the 328A route) and an alternative option proposed by the applicant to complement the 346 route. For the 328A route we had not stated what route would be taken once it served the applicant's site (see Figure 1 in the applicant's 2nd Response document). On the alternative option 346 option it was not clear whether a diverted or split route was being proposed.

Tackling the 328A bus service first, our public transport team states that this would best operate as a one-way loop. The bus would approach from South Oxhey via Little Oxhey Lane. "At this point we have two options. The first would be to carry on up Little Oxhey Lane to Oxhey Lane, passing the development before turning left onto Carpenders Avenue, left again onto Delta Gain, which becomes Harrow Way. It would then turn back onto Little Oxhey Lane to return to Watford. It is equally possible to provide this route in reverse, providing the second option. However, there would be no difference in cost. It would be useful to know the thoughts of the developer as to their preferred route."

HCC's view on the applicant's alternative 346 option arises from the way that funding is sought from the development process for bus service provision. It is recognised that any such funding needs to be time limited after which the bus service needs to be sustainable in the longer term. The public transport team notes that as the 328A service would access the South Oxhey area it has a greater chance of becoming sustainable due to covering a larger catchment area.

Noting the applicant's concerns about the funding sought for the 328A bus service, further work has been carried out on what is considered to be a minimum necessary intervention. This work assumes only an hourly service and no service on Sunday. The applicant's view is welcomed on this. Based on this premise and operating a basic c. 0600-2000 hrs timetable a revised figure has been calculated. The net cost, taking into account estimated revenue, would be £304,166.48pa. Over our standard five-year costing period, this would total £1,520,832.40. Any contribution would be index-linked to the date of the estimate.

The proposed timetable is attached.

On a separate point, and as noted in previous comments, HCC is seeking the applicant's thoughts regarding the siting of new bus stops adjacent to the development, ideally by way of a plan.

2. Review of the applicant's road safety audit.
I apologise to yourself and the applicant for the delay in providing the safety audit review. This is now attached. It would be helpful if the applicant could respond to the last item examined in the review. Commentary on any other part of this review is welcome.

3. Audit of walking and cycling routes
HCC's comments dated 1 October 2025 states that "The Response document notes that the TA provided "an overview of the walking and cycling routes between the site and local facilities" and now provides in Appendix B "a more detailed walking and cycling audit."

The audit examines three routes:
Route 1 – To St. Meryl School & Little hearts pre-school
Route 2 – To bus stops on By The Wood
Route 3 – To Carpenders Park station and South Oxhey local centre

The results of the audit suggest potential improvements which include:

• Installation of tactile paving at uncontrolled crossing points along Carpenders Avenue, Foxleys, The Mead and Gibbs Couch.
• Footway widening into existing grass verges on Oxhey Lane to ensure that the footways are wide enough to walk two side-by-side.
• Resurface existing footways on Oxhey Lane and Carpenders Avenue to improve accessibility and comfort.

The Response document however refers to making a contribution to "support necessary active travel improvements through a Section 106 contribution". This is not accepted. If potential improvements identified in the audit are considered "necessary" to support the development, they should be secured against any planning approval as a "Strand 1 obligation" by way of an appropriate planning condition." (HCC guidance on planning obligation refers).

At our meeting on 20 October, I understood that the applicant would be providing a view as to what it considers to be "necessary" interventions arising from their audit. I believe that this matter is still outstanding. In addition to the above HCC notes its proposal for accessibility improvements at the two "By the Wood" bus stops. A view from the applicant is also sought on this.

I hope the above is useful for helping address outstanding issues. Please let me know if I have not addressed any issues that we discussed.