Proposed Residential Development
Land off Salmon's Lane, Victor Beamish Way,
Caterham, Surrey, CR3 5FX

Highways and Transport Evidence on behalf of Croydon and District Education Trust

of

Philip Anthony Bell BEng(Hons) MCIT MILT MCIHT

LPA Reference: 2023/878
PINS Reference: APP/M3645/W/24/3354498

motion

Document Control Sheet

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This document has been issued and amended as follows:

Date	Issue	Prepared by	Approved by
27th November 2024	1st Draft (Skeleton Report)	DM/PB	PB
8th January 2025	2nd Draft	DM/PB	PB
23rd January 2025	3rd Draft	DM/PB	PB
3rd February 2025	Final	DM/PB	PB
3rd February 2025	Final v2	DM/PB	PB
4th February 2025	Final v3	DM/PB	PB

Motion
84 North Street
Guildford
GU1 4AU
T 01483 531300
F 01483 531333
E info@motion.co.uk
W www.motion.co.uk

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Appendices

1.0 Introduction

Qualifications and Experience

1.1 I hold a First Class Bachelor of Engineering Degree in Civil Engineering and a Royal Society for the Prevention of Accidents (RoSPA) accreditation in advanced road safety engineering. I am a chartered member of the Chartered Institution of Highways and Transportation and a member of the Institute of Logistics and Transport. I have over 35 years' experience in the field of transportation planning, traffic engineering and highway safety.

1.2 I have extensive experience of highways and transport planning within the residential sector and currently act for many of the major land promoters and housebuilders operating in south-east England. In addition, I have extensive experience of major development proposals within the retail, leisure and commercial sectors.

1.3 My experience includes a period in the Development Studies Department of Wootton Jeffreys Consultants. Subsequently, I worked for Mayer Brown for over 14 years. I was jointly responsible for setting up Motion Consultants Limited in August 2004.

1.4 Motion specialises in advising developers and professionals in the development field on all matters concerning transportation, highways, traffic and road safety and our clients comprise a wide variety of private and public-sector organisations.

Statement of Truth

1.5 I confirm that the facts stated in my evidence are my own knowledge, I have made clear which they are and I believe them to be true, and that the opinions I have expressed represent my true and complete professional opinion.

Scope of Evidence

1.6 This Proof of Evidence relates to an appeal by Croydon and District Education Trust (the Appellant) in respect of Land off Salmon's Lane West to the south of Kenley Aerodrome, Victor Beamish Way, Caterham, Surrey, CR3 5FX (the appeal site).

1.7 The appeal has been submitted following the Local Planning Authority's (Tandridge District Council – TDC) refusal of an outline application (ref: 2023/878) for residential development on the Appeal Site.

1.8 The description of development is as follows:

"Development of the site for 80no. residential dwellings including 40% affordable housing, associated landscaping, amenity space and car parking (outline application all matters reserved aside from access)"

1.9 This has subsequently been amended to include 50% affordable housing.

1.10 Two highway related reasons for refusal have been put forward by TDC, namely:

(3) "The site is located in an unsustainable location in transport terms, where the only realistic means of transport would be the private car, due to the distance to local amenities, the lack of suitable pedestrian and cycle connections to those amenities, and the limited availability of accessible public transport services. This is contrary to the aims of the NPPF (December 2023) , the Surrey Local Transport Plan 4 (2022) Policy CSP1 Tandridge District Core Strategy (2008), and Policy DP1 of the Tandridge Local Plan 2014 Part 2: Detailed Policies.

(4) The proposals would result in an unacceptable impact to highway capacity, in particular at the roundabout junction of Salmons Lane West, Buxton Lane and Ninehams Road, contrary the aims of the NPPF (December 2023) , the Surrey Local Transport Plan 4 (2022) the Tandridge Core Strategy 2008 and Policy DP5 of the Tandridge Local Plan - Part 2: Detailed Policies 2014."

1.11 The above reasons for refusal stem from a statutory consultee response provided by Surrey County Council (SCC) highways. TDC has as part of the appeal process prepared a Statement of Case, whilst SCC has prepared a Written Statement. Both comment on the relevant reasons for refusal, which comment on the two above reasons for refusal.

1.12 This Proof of Evidence seeks to respond to the above two reasons for refusal. This will include:

- A summary of the accessibility of the site to local amenities and public transport, demonstrating that future residents are not reliant upon car travel; and
- A review of the operation of the junction in question.

2.0 Discussions with Surrey County Council

2.1 At the time of submission of the planning application (July 2023), the Appeal Site benefited from a draft allocation in the now withdrawn Local Plan (withdrawn draft allocation HSG06, Land off Salmons Lane West). The Council identified the site as deliverable, suitable and achievable for housing having been identified in the Council's Housing Land and Economic Assessment in 2015 and subsequent iterations of the (now withdrawn) Local Plan.

2.2 As part of the examination to assess the suitability of the site, SCC was consulted on transport matters. SCC did not raise any comments, and therefore it is assumed that they did not object to the site for residential development.

2.3 Pre-application discussions were held with SCC in June 2022, with a formal response letter issued by SCC dated 20th June 2022 (see Core Document **3.01**). Various requests were made by SCC, including junction modelling to assess the impact of development traffic on several junctions. SCC also requested the preparation of a Travel Plan to promote non-car travel alongside various other measures, including:

- Provision of either vouchers for public transport or towards purchase of bicycles for future residents;
- A crossing point on Salmons Lane West for residents of the development to be able to reach the bus stop on the southern side of the carriageway; and
- Contributions to upgrading bus stops in the vicinity of the site.

2.4 The pre-application response did not raise the sustainability of the site as a concern, let alone an in principle reason for refusal, instead suggesting measures to promote non-car travel (as set out above).

2.5 A pre-application meeting was also held with TDC in 2022, although a written response was not issued until December 2024. The response was draft and dated 12th September 2022. It is of material consideration that despite TDC refusing the planning application on sustainability grounds (reason for refusal 3), the pre-application response from TDC considered the site to be in a sustainable location to promote non-car travel.

2.6 SCC issued a formal response to the planning application dated 6th November 2023 (see **Appendix A**). The response by SCC was inconsistent with previous guidance and advice and recommended refusal on sustainability grounds (as well as traffic impact). This is despite there being no material change of policy, guidance or circumstances on the ground between the pre-application advice being issued and the consultation response.

2.7 A subsequent Highways Response dated 16th January 2024 (see **Appendix B**) was prepared by Motion and issued to SCC. The January 2024 response included additional mitigation measures not provided in the Transport Assessment submitted with the planning application. These included:

- A new zebra crossing point provided with dropped kerbs and tactile paving across Salmons Lane West, enhancing pedestrian access to the bus stop on the south side of Salmons Lane West. This is a material improvement over the application submission, which only proposed an informal crossing;
- A new informal crossing point provided with dropped kerbs and tactile paving on Whyteleafe Hill, connecting with Salmons Lane. This will aid pedestrians routeing north towards Whyteleafe Station; and
- A pedestrian crossing at Salmons Lane West/Whyteleafe Road to aid connections towards nearby schools; and
- A crossing on Buxton Lane to aid pedestrians routing south towards local facilities.

2.8 Indicative drawings illustrating the above were included in the January 2024 Highways Response note. The above series of crossing improvements are considered a material improvement over the existing arrangement (and that proposed in the Transport Assessment), and aid in ensuring safe access for pedestrians to nearby facilities. They are also considered necessary to make the development acceptable. Again, SCC did not provide any further feedback on the above measures, instead maintaining their objection as per their November 2023 formal response.

2.9 SCC did not respond to the January 2024 Highways Response Note and made no subsequent attempts to engage with my firm to resolve the outstanding issues between the parties. This was despite the discussions during the Case Management Conference when the Council was encouraged to engage with the appellant to identify any improvements to local infrastructure that are considered necessary to address the reasons for refusal.

3.0 Policy Context

3.1 The following paragraphs set out relevant policy referenced within the aforementioned reasons for refusal.

National Planning Policy Framework

3.2 The National Planning Policy Framework (NPPF) December 2024 sets out the Government's planning policies for England and how they are expected to be applied.

3.3 The NPPF presumes in favour of sustainable development and is a material consideration in planning decisions however Paragraph 9 of the NPPF states that it is necessary to focus on local context when planning policy and decisions are being made.

3.4 Paragraph 109 states

"Transport issues should be considered from the earliest stages of plan-making and development proposals, using a vision-led approach to identify transport solutions that deliver well-designed, sustainable and popular places. This should involve:

a) making transport considerations an important part of early engagement with local communities;

b) ensuring patterns of movement, streets, parking and other transport considerations are integral to the design of schemes, and contribute to making high quality places;

c) understanding and addressing the potential impacts of development on transport networks;

d) realising opportunities from existing or proposed transport infrastructure, and changing transport technology and usage – for example in relation to the scale, location or density of development that can be accommodated;

e) identifying and pursuing opportunities to promote walking, cycling and public transport use; and

f) identifying, assessing and taking into account the environmental impacts of traffic and transport infrastructure – including appropriate opportunities for avoiding and mitigating any adverse effects, and for net environmental gains."

3.5 Paragraph 110 outlines the need for a site to be located in an area which encourages sustainable travel for a variety of reasons. The key planning point surrounding Paragraph 109 is as follows:

"Significant development should be focused on locations which are or can be made sustainable, through limiting the need to travel and offering a genuine choice of transport modes."

3.6 Paragraph 115 states:

"In assessing sites that may be allocated for development in plans, or specific applications for development, it should be ensured that:

a) sustainable transport modes are prioritised taking account of the vision for the site, the type of development and its location;

b) safe and suitable access to the site can be achieved for all users;

c) the design of streets, parking areas, other transport elements and the content of associated standards reflects current national guidance, including the National Design Guide and the National Model Design Code; and

d) any significant impacts from the development on the transport network (in terms of capacity and congestion), or on highway safety, can be cost effectively mitigated to an acceptable degree through a vision-led approach."

3.7 This is followed by Paragraph 116 which states:

"Development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network, following mitigation, would be severe, taking into account all reasonable future scenarios."

Regional Guidance

Surrey County Council Local Transport Plan 4

3.8 The Surrey County Council Local Transport Plan 4 document was adopted in 2022 and sets out the council's ambitions for transforming Surrey's transport to 2032 and beyond. While the document does not provide any specific policy for transport at new developments, it does set out the following four objectives for transport in Surrey throughout the lifetime of the documents:

- Enabling a greener future;
- Growing a sustainable economy so everyone can benefit;
- Empowering communities; and
- Tackle health inequality.

3.9 Whilst the above should be given moderate weight, it is not planning policy and not part of the development plan.

Local Transport Note 1/20 – Cycle Infrastructure Design

3.10 Local Transport Note (LTN) 1/20 provides guidance to local authorities on delivering cycle infrastructure. There is an expectation that local authorities will demonstrate that they have given due consideration to this guidance when designing **new** cycling schemes. The guidance is not intended to retrospectively upgrade existing road networks which for example do not benefit from off-road or segregated cycle facilities.

Local Policy

Core Strategy

3.11 The Tandridge District Core Strategy was adopted in October 2008. It sets out key planning policies for the District. Policy CSP1 relates to the location of development and states that:

"In order to promote sustainable patterns of travel and in order to make the best use of previously developed land, development will take place within the existing built up areas of the District (the Category 1 settlements listed below) and be located where there is a choice of mode of transport available and where the distance to travel to services is minimised subject to the third paragraph of this policy.

There will be no change in the Green Belt boundaries, unless it is not possible to find sufficient land within the existing built up areas and other settlements to deliver current and future housing allocations. Such changes will only take place at sustainable locations as set out in Policy CSP2 whilst having regard to the need to prevent built up areas from coalescing. Any changes will be made through a Site Allocations Development Plan Document and the accompanying Proposals Map."

Local Plan Part 2

3.12 Tandridge District Council adopted the 'Local Plan Part 2 - Detailed Policies' in July 2014. Policy DP1, which relates to sustainable development states that:

"A. When considering development proposals the Council will take a positive approach that reflects the presumption in favour of sustainable development contained in the National Planning Policy Framework. It will always work proactively with applicants jointly to find solutions which mean that proposals can be approved wherever possible, and to secure development that improves the economic, social and environmental conditions in the area.

B. Planning applications that accord with the policies in this Local Plan (and, where relevant, with polices in neighbourhood plans) will be approved without delay, unless material considerations indicate otherwise.

C. Where there are no policies relevant to the application or relevant policies are out of date at the time of making the decision then permission will be granted unless material considerations indicate otherwise – taking into account whether:

1. Any adverse impacts of granting permission would significantly and demonstrably outweigh the benefits, when assessed against the policies in the National Planning Policy Framework taken as a whole; or

2. Specific policies in that Framework indicate that development should be restricted."

3.13 Policy DP5, which relates to Highway Safety & Design states that:

"Development will be permitted subject to meeting the requirements of all other appropriate Development Plan policies and where the proposal:

1. Complies with the relevant Highway Authority's and any other highways design guidance;

2. Does not unnecessarily impede the free flow of traffic on the existing network or create hazards to that traffic and other road users;

3. Retains or enhances existing footpaths and cycleway links;

4. Provides safe and suitable access to the site which is achievable by all and promotes access by public transport, foot and bicycle to nearby residential, commercial, retail, educational, leisure and recreational areas where appropriate; and

5. Fully funds where appropriate, or contributes towards the costs of any measures required to cost effectively mitigate the significant impacts arising from the development.

In accordance with the Council's Local Validation Requirements and national guidance, all development proposals that generate significant amounts of movement should be supported by a Travel Plan and either a Transport Statement or Transport Assessment (proportionate to the scale of the proposed scheme and extent of the transport implications), both of which should be submitted alongside the planning application."

3.14 Consideration of where the appeal proposal meets with the above policy is summarised in Table 3.1 below.

Policy Reference	Response
National Planning Policy Framework	
Paragraph 109	The proposal accords with paragraph 109 by: Ensuring suitable footways through the site, whilst ensuring the road network encourages low speeds to make cycling attractive; Assessing the impacts of the development on the road network and demonstrating negligible impact; promote walking, cycling and public transport use through appropriate measures such as new and improved crossing points, bus stop upgrades, and travel vouchers.
Paragraph 110	The proposal accords with paragraph 110 by locating the development to allow residents to travel by non-car modes and offering a genuine choice of travel. This paragraph acknowledges that locations "are or can be made sustainable", which is important in acknowledging the measures provided to further encourage sustainable travel.
Paragraph 115	The proposal accords with paragraph 115 by: a) offering residents a genuine choice of travel by non-car modes; b) providing safe and suitable access to the site for all users; c) ensuring the design of internal roads and parking areas accords with standards; d) ensuring the impacts from the development on the transport network are addressed through appropriate assessment work, with a negligible increase in driver delay.
Paragraph 116	The proposal accords with paragraph 116 by ensuring the proposal would not have an unacceptable impact on highway safety and the impact on the road network is not severe.
TDC Core Strategy	
Policy CSP1	The proposal accords with policy CSP1 by being located where there is a choice of mode of transport available and where the distance to travel to services is minimised.
TDC Local Plan	
Policy DP5	The proposal accords with policy DP5 by: According with appropriate highway design guidance; Does not impede traffic on the highway as it has a negligible impact; Retains footways and improved pedestrian crossing points; Provides safe and suitable access and is accessible by non-car modes to educational, retail, and recreational areas; and Contributes towards the costs of any measures required to cost effectively mitigate the development.

Table 3.1 – Policy Compliance

4.0 Site and Surrounding Area

4.1 The site is located on the northern edge of Caterham, to the west of Whyteleafe. The site is located on land that previously formed part of Kenley Aerodrome, and now forms the grounds of One School Global, Kenley as well as additional vacant land. The school will be retained, with the school building falling outside the application boundary. The site benefits from close proximity to the A22, Whyteleafe South Station and multiple amenities within the residential area of Caterham. The site is located within the administrative authorities of Tandridge District Council (TDC - Local Planning Authority) and SCC (Local Highway Authority).

4.2 The site in relation to strategic transport links is shown in Figure 4.1 below.

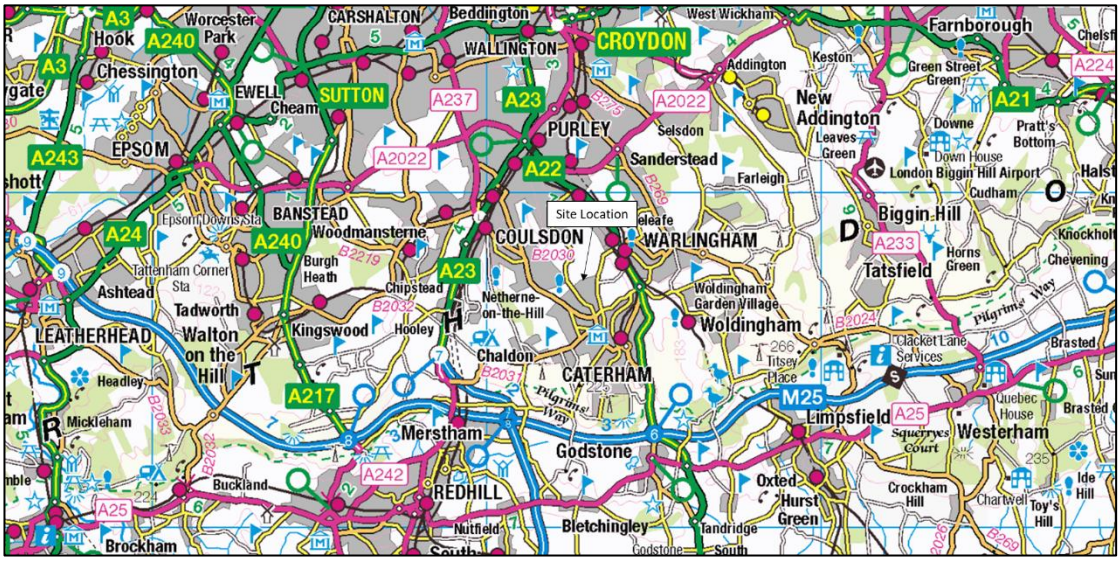


Figure 4.1 – Strategic Site Location

4.3 The site is not located within the settlement boundary, however the former draft Local Plan allocation sought to incorporate the site into the defined settlement boundary. The site in relation to the local area is shown in Figure 4.2 below.

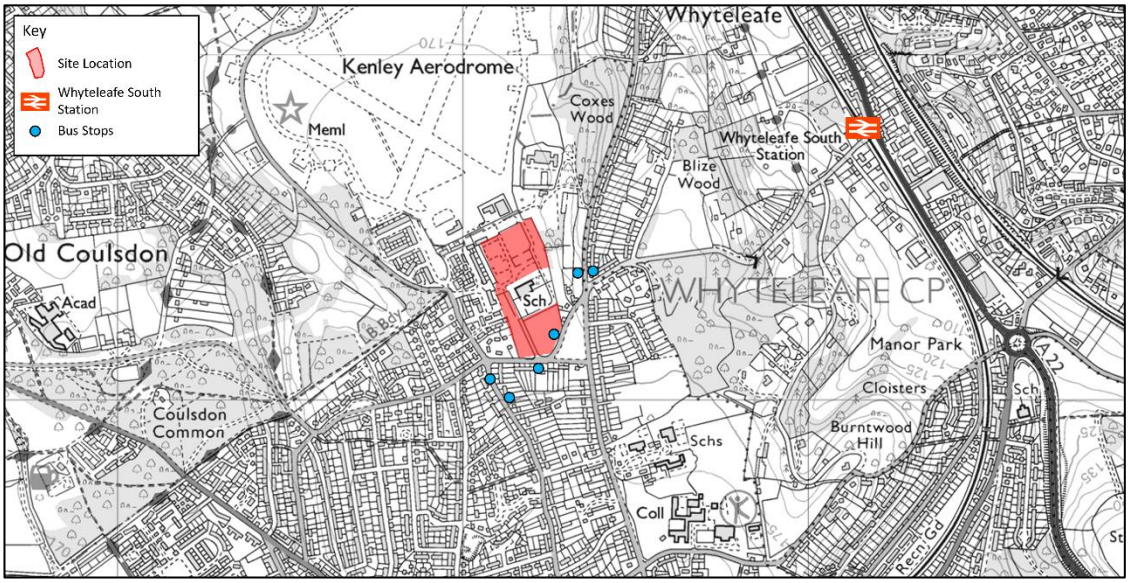


Figure 4.2 – Site Location Plan

Accessibility on Foot

4.4 The site is accessible on foot due to the footways provided along all local roads. Victor Beamish Avenue is provided with a lit footway along the western edge of the carriageway, which provides access to Salmons Lane West. Salmons Lane West is provided with lit footways along both sides of the carriageway in the vicinity of the site.

4.5 Both Buxton Lane (to the west) and Whyteleafe Road (to the east) are provided with lit footways, enabling safe pedestrian access towards Caterham-on-the-Hill town centre.

Accessibility by Cycle

4.6 Government guidance in respect of cycling (CIHT: Planning for Cycling) indicates that people are prepared to cycle up to 8 kilometres in order to reach a specified destination. Caterham, Warlingham, Whyteleafe, Woldingham, Kenley, Coulsdon and Purley are all within 8 kilometres of the site. A cycle isochrone highlighting the destinations accessible by cycle is included in **Appendix C**.

4.7 While there is no dedicated provision for cyclists on local roads, the low 30mph speed limits in place along the majority of local roads makes the environment suitable for cycling.

4.8

Access by Bus

4.9 The closest bus stop to the site is located on Salmons Lane West and is adjacent to the junction with Victor Beamish Avenue. The stop is provided with a flag and timetable information. The location of this stop and others in the vicinity of the site are shown in Figure 4.2. The details of the services running from these stops are set out in Table 4.1 below.

Service	Route	Approximate Frequency		
		Mon-Fri	Saturday	Sunday
409	Selsdon – Chelsham – Warlingham (including **Upper Warlingham Station**) – Whyteleafe (including **Whyteleafe Station**) – Caterham – Godstone – Blindley Heath – Lingfield – Felcourt – East Grinstead	Hourly	Hourly	Hourly
411	Selsdon – Chelsham – Warlingham (including **Upper Warlingham Station**) – Whyteleafe (including **Whyteleafe Station**) – Caterham – Chaldon – Mertsham – Coles Meads – Redhill – Reigate	Hourly	No service	
657	**Whyteleafe Station** – St Bedes School, Redhill	School Bus	No Service	

Table 4.1 – Local Bus Services

4.10 Table 4.1 sets out those buses that residentials can access close to the site which provide connections to a variety of destinations via regular services. This includes nearby railway stations, as described below. Relevant timetables highlighting journey times and frequency are shown within **Appendix D**.

4.11 It is of material note that route 409 eastbound services towards Warlingham (including both Whyteleafe and Upper Warlingham stations) commence at 06:18 hours. Indeed there are four buses on route 409 which depart close to the site prior to 08:00 hours (06:18, 07:01, 07:28 and 07:58 hours), suggesting that residents could plan their journey to incorporate a combined bus and rail journey. Frequency of service varies across the day, averaging at one service per hour. However at times the service operates more frequently (as evidenced by the above services prior to 08:00 hours).

4.12 Route 409 services towards East Grinstead (via Caterham) commence at 06:44 hours, with services operating largely hourly (albeit with some half hourly services during the day).

4.13 The latest bus service on route 409 leaves Upper Warlingham Station at 19:15 and Whyteleafe Station at 19:17 hours. Journey times from Whyteleafe Station to the bus stop directly opposite Victor Beamish Avenue is two minutes. As such route 409 offers clear opportunities to be combined with rail services from either of the above two railway stations.

4.14 The last route 409 service from Caterham departs Caterham Railway Station at 19:10 hours, arriving at Salmons Lane West at 19:23 hours. Again this highlights how there is scope for future residents to use existing bus services to commute into Caterham (as well as onward journeys to East Grinstead or north to Warlingham).

4.15 Route 411 operates with fewer bus services throughout the day however services depart from opposite Victor Beamish Avenue at 07:17 hours, routing towards Caterham, Redhill, and Reigate. Route 411 operates from Caterham to the appeal site until 18:00 hours. As such whilst services do not extend as long as route 409, there are alternative options available to future residents.

Access by Train

4.16 Whyteleafe Station is located 1.8 kilometres from the site, and can be accessed via a 8 minute cycle. Details of train services running from Whyteleafe Station in Table 3.2 below.

Service	Route	Approximate Frequency		
		Mon-Fri	Saturday	Sunday
Caterham	Whyteleafe South – Caterham	Every 30 minutes	Every 30 minutes	Every 30 minutes
London Bridge	Whyteleafe South – Whyteleafe – Kenley – Purley – Purley Oaks – South Croydon – East Croydon – Norwood Junction – London Bridge	Every 30 minutes	Every 30 minutes	Every 30 minutes

Table 3.2 – Train Services from Whyteleafe Station

4.17 Whilst Whyteleafe South Station is located closer to the site at 1.3 kilometres, it is not accessible on foot with the gradient potentially being a deterrent to cyclists. As such, Whyteleafe Station is considered the most likely station accessed via residents.

4.18 In addition, Upper Warlingham Station is located 2.1 kilometres from the site, and can be accessed via a 25 minute walk or 9 minute cycle. Upper Warlingham Station provides services to East Grinstead and London Waterloo, and can also be accessed via a continuous walk route. This is given further consideration in the following section of this Proof.

Access to Local Amenities

4.19 Due to the location of the site in the residential area of Caterham, there is a variety of amenities within walking distance of the site. The location of a number of these amenities are shown in Figure 4.3 below.

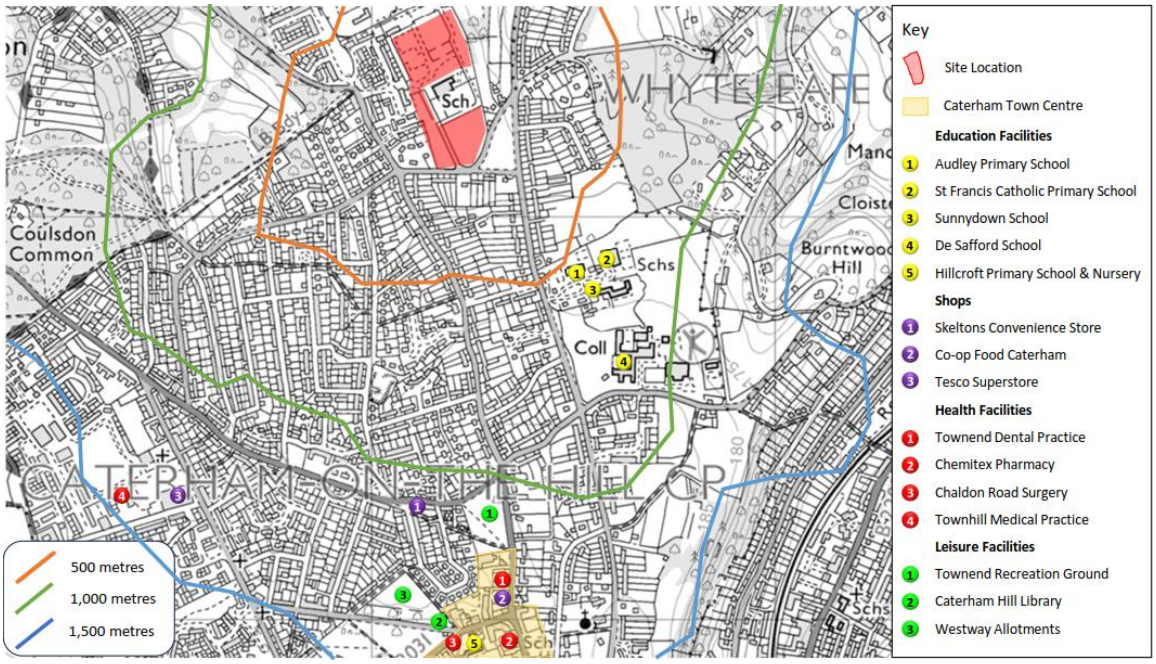


Figure 4.3 – Amenities Map

4.20 Section 5 of this Proof sets out the suitability of key walking routes to the above amenities.

5.0 Transport Sustainability

Access to Sustainable Transport Modes

5.1 One of the highway related reasons for refusal relates to the sustainability of the site, stating that:

"The site is located in an unsustainable location in transport terms, where the only realistic means of transport would be the private car, due to the distance to local amenities, the lack of suitable pedestrian and cycle connections to those amenities, and the limited availability of accessible public transport services. This is contrary to the aims of the NPPF (December 2023) , the Surrey Local Transport Plan 4 (2022) Policy CSP1 Tandridge District Core Strategy (2008), and Policy DP1 of the Tandridge Local Plan 2014 Part 2: Detailed Policies.

5.2 It is my view that future residents will benefit from alternatives to the private car. This is as evidenced within the Transport Assessment submitted with the planning application as well as the supplementary highways report dated 16th January 2024.

5.3 The site was allocated for residential development in the now withdrawn draft Tandridge Local Plan 2033. As part of the examination to assess the suitability of the site, SCC was consulted on transport matters. SCC did not raise any comments, and therefore it is assumed that they did not object to the site for residential development. Pre-application discussions were held with SCC in June 2022, where SCC did not raise sustainability as a concern, subject to appropriate measures being promoted to encourage residents to travel by non-car modes. Details of measures were set out in the Transport Assessment, and further measures were proposed post-submission as set out in Section 2.

5.4 As set out within the Transport Assessment, The Chartered Institution of Highways and Transportation prepared documents, 'Planning for Walking' in April 2015 and 'Planning for Cycling' in October 2014. The documents summarise general uptake of walking and cycling, noting the following:

- *"Across Britain about 80% of journeys shorter than 1 mile are made wholly on foot…but beyond that distance cars are the dominant modes"* (Planning for Walking, 2015).
- *"Majority of cycling trips are used for short distances, with 80% being less than five miles and with 40% being less than two miles"* (Planning for Cycling, 2014).

5.5 The Department for Transport's 'Manual for Streets' (MfS, March 2007) identifies *'walkable neighbourhoods' as being "characterised by having a range of facilities within 10 minutes (up to about 800 metres) walking distance of residential area which residents may access comfortably on foot".* However, MfS does not consider 800 metres to be a maximum walking distance and the publication contends that walking can be used to access a variety of destinations within a range of up to 2 kilometres. Further, 80% of all trips that cover a maximum distance of 1 mile are completed on foot (National Travel Survey, 2020).

5.6 The Department for Transport issued Local Transport Note 1/20 in July 2020, which sets out guidance for designing cycling infrastructure design in the UK. Whilst all new key cycling infrastructure, such as cycle lanes must now adhere to the LTN 1/20, this does not apply to old or existing infrastructure. Ultimately there is no requirement to implement new cycle lanes either off-road or on-street in all locations. Any new infrastructure must be considered in the context of the site location and quantum of development proposed.

5.7 Additionally, SCC's LTP4 sets out the sustainable travel hierarchy from walking as the least polluting mode of transport at number 1 to air travel being the most polluting at number 7:

1. Walking
2. Cycling
3. E-bikes
4. Public transport

5. Car clubs, taxis, car sharing
6. Private car
7. Air travel.

5.8 Section 4 of my evidence sets out the location of the site to a variety of amenities. These include a railway station accessible both on foot and by cycle. There are also bus stops adjacent to the site on Salmons Lane West. Whyteleafe Station is located 1.8 kilometres from the site, whilst Upper Warlingham Station is located 2.1 kilometres from the site.

5.9 A significant number of amenities including food retail, leisure, schools, and medical facilities are located within a 20 minute walk. This corresponds to 1 mile or 1.6 kilometres (applying an average speed of 1.33 metres per second), which I considered to be an acceptable distance for residents to walk (reference has previously been made to 'Planning for Walking' and 'Planning for Cycling' in respect of suitable distances).

5.10 To provide context, travel modes of the existing resident population have been established with reference to census data for 'Method of Travel to Work' for the resident population (2011 output) for the Mid-Layer Super Output Area 'E02006430: Tandridge 003'. This is summarised in Table 5.1 below, and is as per that set out in the Transport Assessment submitted with the outline application.

Mode of Travel	Census Modal Split
Car Driver	64%
Train	15%
On foot	7%
Bus, minibus, coach	6%
Passenger in car/van	4%
Bicycle	1%
Motorcycle	1%
Taxi	1%
Other	1%
Total	100%

Table 5.1 – Census Modal Split (Tandridge 003)

5.11 The above highlights how a large percentage of residents in the surrounding area commute via rail services. As shown in section 4 of this report, there are three railway stations close to the site offering frequent access to London, East Grinstead, and Croydon.

5.12 Concern has been raised by SCC in respect of the suitability of the route to key facilities, especially railway stations. However Table 5.1 highlights how 15% of residents in the surrounding output area (located predominantly south of the appeal site and therefore further from each railway station) travel to work by rail. This reinforces the conclusion that the route to the railway stations is not a barrier to ongoing use of this mode of travel. This is highlighted below in Figure 5.1, which shows the Tandridge 003 Output Area and the location of the three railway stations.

5.13 CC states in its November 2023 formal response that:

"It can therefore be reasonably concluded that the 15% of residents expected to commute by rail would be most likely to travel to the station by private car."

5.14 The above disregards the fact that being at the northern end of the MSOA means that the site is located closer to three railway stations than most of the remainder of MSOA. It is entirely reasonable to assume that if the entire MSOA can attract 15% of trips by rail, then the site could very well exceed this percentage. Further consideration of walk distances is considered in this section.

5.15 For clarity, Figure 5.1 below illustrates the close proximity of the site to the three railway stations, whilst the site is also very close to the four schools on Whyteleafe Road.

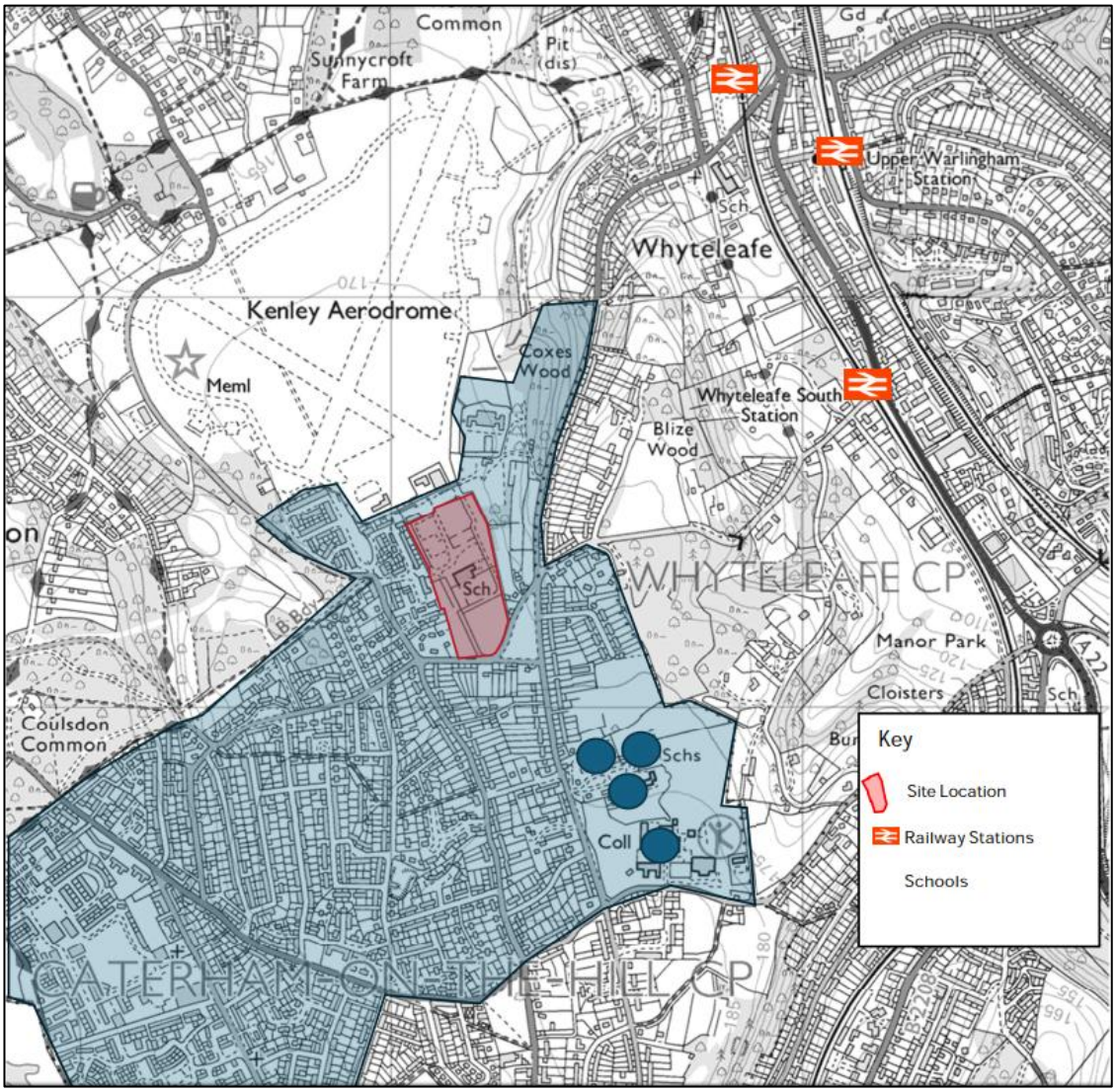


Figure 5.1 – Output Area Highlighting Sites Close Proximity to Three Railway Stations

5.16 In respect of the proximity of the site to amenities, SCC stated in its November 2023 formal response that:

"It should be noted that the site is at the northern end of the MSOA and that the majority of people within the dataset would live closer to the local amenities than residents of the proposed development would. As such, it is likely that the actual mode share of the proposed development would likely include even lower figures for walking and cycling."

5.17 The Appeal site is located within one kilometre of four schools (considered further below). On this basis, there is no substance to suggest the site would attract a lower percentage of walk or cycle trips, especially when considering the number of amenities within an accepted walk distance.

5.18 SCC states within its November 2023 formal response that:

"Table 3.3 within the Transport Assessment (TA) demonstrates that local amenities, in particular including food retail, are mostly located in excess of a half-hour return journey by foot and walking this route during the site visit undertaken by the CHA demonstrated that the actual journey times are longer than those indicated in the TA, partly due to the additional time spent attempting to cross over roads along the route."

5.19 Table 3.3 in the Transport Assessment, replicated below as Table 5.2, highlights how a significant number of amenities including food retail, leisure, schools, and medical facilities are located within a 20 minute walk. The walk distances are based on a standard measure of 1.33 metres per second (80 metres per minute).

5.20 As set out earlier in this section of the Proof, The Chartered Institution of Highways and Transportation released two documents, 'Planning for Walking' in April 2015 and 'Planning for Cycling' in October 2014. The documents provide an insight into the sustainable methods of transport, highlighting how one mile is an acceptable walk distance to a destination, whilst 5 miles is an acceptable distance by cycle.

5.21 As shown below, there are many facilities located within 1.6 kilometres (1 mile), suggesting there is real scope for many trips to be undertaken on-foot.

Amenity	Distance	Walk Time	Cycle Time
Education Facilities			
Audley Primary School	550m	7 minutes	3 minutes
St Francis Catholic Primary School	650m	8 minutes	4 minutes
Sunnydown School (Special Education School)	650m	8 minutes	4 minutes
De Stafford School (Secondary School)	1,000m	13 minutes	5 minutes
Hillcroft Primary School & Nursery	1,400m	18 minutes	5 minutes
Shops			
Skeltons Convenience Store	1,100m	14 minutes	4 minutes
Co-op Food Caterham	1,300m	16 minutes	4 minutes
Tesco Superstore	1,400m	22 minutes	8 minutes
Health Facilities			
Townend Dental Practice	1,200m	16 minutes	4 minutes
Chemitex Pharmacy	1,400m	17 minutes	5 minutes
Chaldon Road Surgery	1,500m	19 minutes	6 minutes
Townhill Medical Practice	1,500m	21 minutes	7 minutes
Leisure Facilities			
Townend Recreation Ground	1,100m	14 minutes	4 minutes
Caterham Hill Library	1,500m	19 minutes	6 minutes
Westway Allotments	1,600m	20 minutes	6 minutes

Table 5.2 – Amenities within Walking Distance of the Site

5.22 The above serves to show how there are four schools within one kilometre, all of which could be accessed by future residents. It also highlights how the response from SCC suggesting that amenities are inaccessible is flawed.

5.23 It is important to quote section 6.4 in Planning for Walking (2015), which states that "*Most people will only walk if their destination is less than a mile away".* This focus on the distance to the "destination" clearly suggests that the one mile is a single journey either there or back, and not both legs of the journey. Once that is appreciated, it can clearly be seen that the site is accessible to many amenities, and the approach taken by SCC is flawed and contrary to long-established and commonly used guidance.

5.24 SCC also states that "*The actual journey times are longer than those indicated in the TA, partly due to the additional time spent attempting to cross over roads along the route*."

5.25 Consideration of improved crossing facilities are summarised later in this Proof, which includes a new zebra crossing on Salmons Lane West, as well as informal crossings in a number of other locations. Irrespective, I do not consider the time taken to cross roads or junctions to materially impact on journey times.

Key Routes to Amenities

5.26 In order to further assess the level of accessibility of the proposed site, the key routes to local amenities have been identified and described. This was previously set out in the Transport Assessment, but amended in my evidence to include the two railway stations to the north. The two railway stations were not included previously as the focus was placed on the closest station (Whyteleafe South), although it is accepted that the two additional railway stations are more attractive for travel on foot. These routes are shown in Figure 5.2 below.

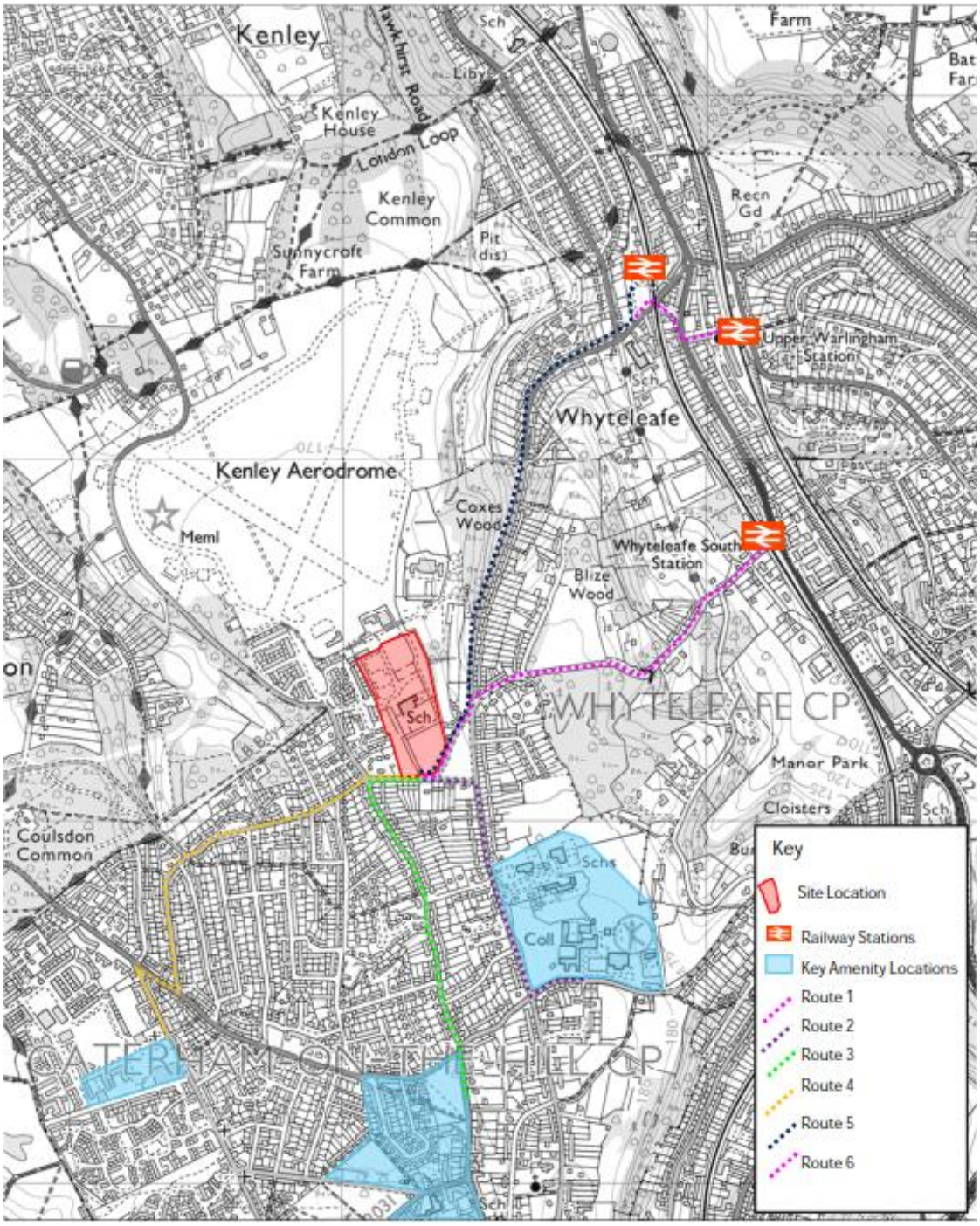


Figure 5.2 – Key Routes to Key Amenities and Railway Stations

Route 1

5.27 This route provides access from the site to Whyteleafe South Station. Salmons Lane is provided with a footway along the western edge of the road. There are no crossing points provided across Whyteleafe Hill in the vicinity of the junction with Salmons Lane, although improvements are proposed as part of this scheme. Salmons Lane (to the east of Whyteleafe Hill) is not provided with footways between Whyteleafe Hill and Whyteleafe South Station. As such whilst Whyteleafe South Station is the closest railway station to the site, it is less likely to be used by residents of the Appeal site. Whilst this may stop all trips on foot, some experienced cyclists may utilise this route.

5.28 The provision of dropped kerbs and tactile paving to improve crossing facilities on Whyteleafe Hill is discussed in Section 6 of this report.

Route 2

5.29 Salmons Lane West is provided with footways along the southern edge of the carriageway between Victor Beamish Avenue and Whyteleafe Road. Whyteleafe Road is provided with footways along both sides of the carriageway for 200 metres south of the junction, the western footway continues beyond this point. Approximately 25 metres north of the access to Audley Primary School, Sunningdown School and St Francis Catholic Primary School, a signalised pedestrian crossing is provided, enabling safe pedestrian access to the school.

5.30 A signalised pedestrian crossing is provided on each of the arms of the Whyteleafe Road/ Burntwood Lane junction. Burntwood Lane is provided with wide, lit footways along both sides of the carriageway, with a pedestrian crossing equipped with tactile paving and island provided adjacent to De Stafford School on Burntwood Lane.

5.31 This route is suited to trips both on foot and by cycle, with the 30mph speed limit not considered a deterrent to cyclists.

Route 3

5.32 Salmons Lane West is provided with footways along both sides of the road to the west of the junction with Victor Beamish Avenue. Buxton Lane is provided with footways along both sides of the carriageway, the majority of junctions along Buxton Lane are provided with dropped kerbs, enabling pedestrians to easily cross and continue south along Buxton Road. Pedestrian crossing points provided with pedestrian islands and tactile paving are provided at the junctions between Buxton Lane & Burntwood Lane and Townend & Banstead Road. Similar pedestrian crossing points are also provided across Buxton Lane and Townend in the vicinity of these junctions. Further pedestrian crossing points are provided within the town centre.

5.33 This route is suited to trips on foot as it falls within a suitable walk distance, although due to the 30mph speed limit of roads on this route, it is considered that cycling is also viable.

Route 4

5.34 Salmons Lane West is provided with footways along both sides of the road to the west of the junction with Victor Beamish Avenue. No pedestrian crossing points are provided at the junction between Salmons Lane West, Buxton Lane and Ninehams Road. Wide, lit footways are provided along both sides of Ninehams Road (at points these footways are set back from the carriageway), Milton Road and Banstead Road. At the junction between Banstead Road and Coulsdon Road, signalised pedestrian crossing points are provided. Wide, lit footways are provided along Coulsdon Road, with pedestrian crossing points provided adjacent to the Tesco Superstore.

5.35 This route is suited to trips on foot as it falls within a suitable walk distance, although due to the 30mph speed limit of roads on this route, it is considered that cycling is also viable.

Route 5

5.36 This route initially follows the same alignment as route 1. Salmons Lane is provided with a footway along the western edge of the road. There are no crossing points provided across Whyteleafe Hill in the vicinity of the roads junction with Salmons Lane, although improvements are proposed as part of this scheme.

5.37 The route along Whyteleafe Hill benefits from a continuous wide footway, with a pedestrian crossing point on the highway leading directly to Whyteleafe Station entrance. Whilst there is a continuous gradient of 1 in 12.5 (8%) on Whyteleafe Hill, this is not considered a deterrent to walking. I have observed during the day how people of different ages (including a parent pushing a pram) utilise this route to access nearby amenities.

5.38 Traffic calming is in place along Whyteleafe Hill which controls the speed at which drivers travel (especially to control downhill speeds).

5.39 Department for Transport Local Transport Note (LTN) 1/20 entitled 'Cycle Infrastructure Design' provides guidance for use when designing new cycling schemes. No new scheme is proposed; however this guidance has been considered in the context of the appeal proposal. The gradient on Whyteleafe Hill does not exceed the maximum of 8% set out in LTN 1/20 and I do not consider the gradient to represent a significant deterrent to cyclists using conventional bikes. Moreover, it is relevant that the sales of electric bikes have increased significantly over recent years and are expected to continue to rise. It is my view that the 8% incline will not represent any deterrent to cyclists using electric bikes.

5.40 Gradients are a characteristic of the area, something that is not unusual for towns in similar locations (many locations in Surrey are characterised by roads with gradients).

Route 6

5.41 Route 6 is a continuation of route 5, albeit with an extended section crossing the A22 Godstone Road to access Upper Warlingham Railway Station. Dedicated crossing points are in place to aid safe crossing.

5.42 Whilst the distances

Summary

5.43 The above serves to show how a variety of amenities can be safely accessed on-foot or via cycle. This includes two railway stations which can be accessed on-foot or by cycle. As per SCC's LTP4 referenced in this section, walking, cycling and e-bikes are ranked at the top of the hierarchy for travel. The gradient on Whyteleafe Hill could be a deterrent to some cyclists, although the proposals include a voucher to be spent on cycle purchase which could include an e-bike. The gradient is not considered a deterrent to trips on foot.

6.0 Off-Site Improvements

6.1 The development proposals set out within the Transport Assessment included appropriate measures to address the increase in trips generated by the site. Further measures were submitted to SCC in January 2024 to further reinforce the future sustainability credentials of the site.

6.2 These include footway and pedestrian crossing improvements to include a new zebra crossing point provided with dropped kerbs and tactile paving across Salmons Lane West, enabling pedestrian access to the bus stop on the southern edge of Salmons Lane West. This is a material improvement over the application submission, which only proposed an informal crossing.

6.3 It was also proposed to introduce a new informal crossing point provided with dropped kerbs and tactile paving on Whyteleafe Hill, connecting with Salmons Lane. This would aid pedestrians routeing north towards Whyteleafe Station.

6.4 The aforementioned former draft Local Plan allocation required contributions towards various highway related measures. This included informal crossing points at the following locations:

- Pedestrian access improvements across Buxton Lane;
- Pedestrian crossing at Salmons Lane/Whyteleafe Road (as noted above); and
- Pedestrian crossing at Salmons Lane West/Whyteleafe Road to connect with nearby schools.

6.5 Rather than applying a condition, it is envisaged that the above would form part of a Section 278 Agreement, as set out in the January 2024 highway response note. The pedestrian crossing at Salmons Lane/Whyteleafe Road will aid pedestrians walking to the railway station, whilst the pedestrian crossing at Salmons Lane West/Whyteleafe Road will aid connections towards nearby schools. Finally, the crossing on Buxton Lane will aid pedestrians routeing south towards local facilities.

6.6 The above series of crossing improvements are considered a material improvement over the existing arrangement (and that proposed in the Transport Assessment), and aid in ensuring safe access for pedestrians to nearby facilities.

6.7 It has been shown that amenities fall within an acceptable walk distance. The above measures will create a safer walking route to amenities, further encouraging residents to undertake non-car travel.

6.8 Relevant drawings are included within **Appendix E**. It is noteworthy that there are no mitigation measures referred to in the former draft allocation or indeed within any advice provided by TDC or SCC that is not being offered by the appellant.

6.9 The Statement of Common Ground agreed with TDC confirms that both TDC and SCC do not suggest there is any necessary infrastructure that should be provided that is not being offered.

6.10 Despite the above, the appellant is prepared to offer additional measures. These measures could include the provision of a car club vehicle on site with free membership for future residents. The Travel Plan also refers to cycle vouchers, which could be extended in value to offer scope for future residents to purchase e-bikes. An e-bike would address concern raised by SCC over the gradient of Whyteleafe Hill.

6.11 The above additional measures are not considered necessary to make the development sustainable. However they could be secured by way of an appropriate condition should the Inspector consider it appropriate.

7.0 Junction Capacity

7.1 In respect of traffic impact associated with the appeal proposal, SCC states within its formal response (dated 6th November 2023) that:

"The TA shows a worsening to an RFC value of 0.95 on this arm of the junction in the AM peak hour. While this is only represents a worsening of 0.01 (or 1%), the fact that this arm is so close to maximum theoretical capacity makes any further worsening represent a potentially significant impact to the safe and effective operation of the public highway.

7.2 This is unreasonable when you consider that the modelling outputs do not predict queuing to increase materially. A worsening of 0.01 RFC is immaterial and cannot reasonably be assumed to have a negative impact. Queuing could increase by up to one vehicle, with a negligible increase in driver delay (amounting to an increase of six seconds).

7.3 It must be noted that the assessment considers the future year scenario (five years post-submission). It is therefore robust in accounting for future traffic flow on the network. It also does not account for any reductions in traffic flow resulting from sustainable travel measures proposed.

7.4 The assessment is therefore robust and takes account of future growth. Critical to assessing the impact is paragraph 116 of the National Planning Policy Framework (NPPF), which states that:

"Development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network, following mitigation, would be severe, taking into account all reasonable future scenarios."

7.5 There is no assertion that the development will impact on highway safety, with the Transport Assessment demonstrating that there is no existing accident record on surrounding roads. The above impact, as set out in detail in the Transport Assessment cannot reasonably be construed as being a 'severe' impact. It also complies with paragraph 116 by considering all reasonable future scenarios.

7.6 SCC also state in their November 2023 response that:

"The above concern is worsened in the context of the additional mode share data presented within Table 5.2. While use of vehicle trip rates from TRICS is a generally acceptable method of forecasting trip generation for development proposals, rationalisation using local data such as that provided by the Census can provide a better local insight into the actual likely levels of vehicle movements to be generated by the proposals."

7.7 Following on from the TRICS based assessment set out in the Transport Assessment, a revised worst-case scenario has been prepared that utilises the census data set out in Table 5.2 in the Transport Assessment (and Table 5.1 of this Proof). The revised number of vehicular trips generated by the Appeal proposal in the weekday morning peak hour is replicated below for clarity in Table 7.1.

	Census Modal Split	**Weekday AM Peak**	
		Arr	**Dep**
Car Driver	64%	12 (+1)	52 (+16)

Table 7.1 – Census Modal Split (Tandridge 003)

7.8 The above serves to show how an additional 17 vehicles are added to the road network by adopting the census data output, compared to that shown by TRICS (and assessed in the Transport Assessment modelling work).

7.9 As set out in the Transport Assessment, 37% of trips generated from the development will use Salmon Lane whilst 63% of trips will use Salmon Lane West. Therefore not all development traffic will utilise the Nineham Road roundabout. This distribution has not been questioned by SCC.

7.10 A total of 13 additional vehicle movements would route via the Ninehams Road roundabout. These have been distributed based on the same trip distribution used in the Transport Assessment, and is summarised in Table 7.2 below.

	Salmon Lane			Salmon Lane West		
	Arrival	Departure	Total	Arrival	Departure	Total
AM Peak (08:00-09:00)	4	19 (+6)	23 (+6)	8 (+1)	33 (+12)	41 (+13)

Table 7.2 – Trip Distribution

7.11 The amended results for the morning peak hour, which represents the busiest time period is summarised in Table 7.3 below. The output is attached as **Appendix F**.

Arm	2028 AM Peak Baseline			2028 AM Peak with Development		
	RFC	Queue (veh)	Delay (s)	RFC	Queue (veh)	Delay (s)
Salmons Lane West	0.56	1	12	0.61	2	13
Buxton Lane (S)	0.48	1	8	0.49	1	10
Nineham Road	0.94	9	82	0.95	10	88
Buxton Lane (N)	0.76	3	29	0.77	3	30

Table 7.3: 2028 Weekday AM Development Results Summary

7.12 The additional traffic during the morning peak associated with the uplifted traffic flow primarily impacts on Salmons Lane West, as there would be additional vehicles routeing south from this arm. These would all constitute departures from the site and not arrivals. No additional vehicles route in either direction via Ninehams Road, as the census data shows only 9% of development trips using this arm.

7.13 As such whilst the junction as a whole would experience an increase in traffic flow which marginally increases the RFC and delay on both Salmons Lane West and Buxton Lane, it will not change the RFC/delay on Nineham Road above that was set out in the original Transport Assessment. Therefore even with additional vehicles using the junction, the same conclusion drawn in the Transport Assessment would apply.

7.14 It is noteworthy that the RFC is only exceeded for part of the hourly period, namely between 08:15 and 08:45 hours. As such the queuing only occurs for part of the hourly period and not throughout.

7.15 On this basis, the arguments set out in my evidence for no material impact would still apply. SCC also state in its November 2023 response that:

"Given that trips made by rail would most likely start with a car trip to the railway station… there is a strong argument that the rail mode share should be added to the expected car trip generation."

7.16 I consider this argument flawed. As set out earlier in my Evidence, there are three railway stations close to the site, two of which can be accessed via footways. My evidence refers to highway improvements to offer additional crossing facilities for pedestrians.

7.17 In any case the above is not relevant to this assessment; even if some of those trips assigned to train trips are undertaken partly by car, this would route vehicles to the east and not to the west (therefore not accessing the Nineham Road roundabout). The junction modelling assessments contained within the TA raise no concern in respect of traffic impact to the east of the site.

7.18 In order to provide greater clarity to the Inspector, further consideration has been given to the additional car trips that would be generated should the 15% of trips by train initially constitute car trips. Based on the traffic flow generated by the development (as set out in the Transport Assessment) this would amount to a further 12 car departures. If these 12 vehicles were to route towards Caterham Station as suggested by SCC, they would not pass through Nineham Road (which is the arm of the junction shown to reach close to capacity), instead routing south along Buxton Lane.

7.19 The additional 12 vehicles have been tested within the validated junction model and do not result in any changes to the output for the very reason that Nineham Road is not affected.

8.0 Response to SCC Written Statement

8.1 SCC in its capacity as the highway authority has prepared a Written Statement dated 24th December 2024.

8.2 With regards to sustainability, SCC state that:

"The site is located within the Kenley Aerodrome, accessed from Victor Beamish Avenue in Caterham. This is a built-up, residential areabut is situated a long distance from local amenities and trip attractors, with very poor pedestrian and cycle infrastructure and steep gradients and existing capacity issues on local roads. Due to the poor sustainability of the location and the absence of proposed measures to materially improve on the sustainability of the site, the CHA considers that residents of the proposed development would be heavily reliant on the use of private motor vehicles for the majority of regular journeys."

8.3 As set out in my Proof, there are amenities and trip attractors located within what is accepted as a suitable walk distance of the Appeal site. There is no evidence to suggest the pedestrian infrastructure is poor, and indeed my Proof describes the footway network alongside proposing additional measures to improve pedestrian connectivity.

8.4 Measures contained within this proof include vouchers for residents to purchase cycles or public transport tickets alongside physical crossing improvements and upgraded bus stops.

8.5 The Written Response also questions the safety of the cycle route to Whyteleafe South Station, although as set out in this Proof residents are not reliant upon this railway station, with Whyteleafe Station likely to be used by residents both on foot and by cycle. The SCC Written Statement does not acknowledge the two railway stations to the north and instead focuses only on Whyteleafe South Station.

8.6 The Written Statement continues by stating that:

"Due to the journey distance by foot and the lack of suitable cycle infrastructure, it is not considered realistic that residents would have any propensity to travel by active travel modes to local amenities, especially for shopping trips given the need to carry goods on the return journey."

8.7 The above is an assumption which cannot be supported by policy or guidance, with this Proof setting out those amenities located within an accepted walk distance. Therefore residents would not be solely reliant upon car travel.

8.8 In respect of junction modelling, SCC states that:

"The modelling assumptions utilised within the TA and Highways Response document are not considered fully robust for the reasons detailed above and due to the lack of any suitable walking or cycling routes to local amenities, particularly railway stations, and the resultant increase in car mode share as well as the impacts this will have on assumptions around routing. Due to the more limited parking availability at the Whyteleafe and Whyteleafe South stations and the similar journey times by car, it is considered very likely that residents of the proposed development who were seeking to travel by rail would choose to travel to the Caterham Railway Station. This would route additional vehicles via Salmons Lane West, Buxton Lane and Ninehams Road mini-roundabout junction and should therefore have been assessed as a reasonable and realistic scenario."

8.9 The above is considered flawed for a number of reasons. Firstly, Whyteleafe Station is accessible via non-car modes as described in my Proof. Residents will not be reliant upon driving to the station Caterham station, and in any event would be dissuaded from doing so due to the cost (£7.50 per day). There are parking controls on roads surrounding the station, including yellow lines extending beyond 600 metres on Whyteleafe Hill towards the Appeal site. Due to the distance and journey time involved, it is highly unlikely a resident would travel to Caterham Station, as this station is further downstream from Whyteleafe Station (thus adding to the rail cost and journey time).

8.10 It is pertinent to note that Whyteleafe Station has 124 car parking spaces, whilst Caterham Station has 130 spaces. Therefore, there is no evidence that Caterham Station would be in any way more attractive to use, or that residents seeking to travel by train would combine with a car trip.

8.11 The Written Response does not in my view provide any substantive justification to support the two reasons for refusal.

9.0 Summary and Conclusion

9.1 This Proof of Evidence relates to an appeal by Croydon and District Education Trust (the appellant) in respect of Land off Salmon's Lane West to the south of Kenley Aerodrome, Victor Beamish Way, Caterham, Surrey, CR3 5FX (the 'appeal site'). The appeal has been submitted following the Local Planning Authority's (Tandridge District Council, TDC) refusal of an outline application (ref: 2023/878) for residential development on the Appeal Site.

9.2 In summary, my evidence demonstrates the following:

- The appellant has been proactive in seeking to engage with SCC, although through inconsistent advice and a lack of response during the application process has been unable to reach agreement on highway matters;
- The proposals accord with relevant policy guidance at both a national and local level;
- The proposals will contribute towards reducing dependence on the private car by offering a genuine choice of transport modes in accordance with policy outlined in the National Planning Policy Framework.
- A range of local services and facilities can be reached on foot or by cycle within a suitable distance;
- Residents benefit from access to both bus and rail services, which offers residents the opportunity to connect with both local destinations as well as further afield, including Central London;
- New and enhanced facilities for pedestrians have been designed in several locations to improve access to public transport and local amenities on foot;
- There is no evidence that the development will impact on highway safety, with the Transport Assessment demonstrating that there is no existing accident record on surrounding roads that needs addressing; and
- The impact of development traffic is negligible, with the performance of existing junctions on the surrounding road network only reducing by a marginal level. Queuing could increase by up to one vehicle, whilst driver delay would be limited.

9.3 Based on my evidence it is my professional opinion that the proposals are fully compliant with the transport related principles of the NPPF, particularly section 9, which relates to sustainable travel and impacts on the road network. Furthermore, I do not consider the transport related aspects of the proposals to be in conflict with either the Tandridge Core Strategy (2008) or the Local Plan (2014). I therefore conclude that there are no highways or transport related grounds that would justify refusal of planning permission.

Appendix A

SCC Formal Application Response (November 2023)

SURREY
COUNTY COUNCIL

APPLICATION NUMBER	2023/878

DEVELOPMENT AFFECTING ROADS

TOWN AND COUNTRY PLANNING GENERAL DEVELOPMENT ORDER 1992

Location: Kenley Aerodrome, Victor Beamish Avenue, Caterham, Surrey, CR3 5FX

Development: Development of the site for 87no. residential dwellings including 40% affordable housing, associated landscaping, amenity space and car parking (outline application all matters reserved aside from access) (This is a major planning application and a Departure from the Development Plan. The site is located within the Kenley Aerodrome Conservation Area, it affects the setting of Listed Buildings, and affects the Setting of Scheduled Monuments)

Contact Officer	James Lehane	Consultation Date	6 September 2023	Response Date	6 November 2023

The proposed development has been considered by THE COUNTY HIGHWAY AUTHORITY who has assessed the application on safety, capacity and policy grounds and recommends the proposal be refused on the grounds that:

Reasons

1) The site is located in an unsustainable location in transport terms, where the only realistic means of transport would be the private car, due to the distance to local amenities, the lack of suitable pedestrian and cycle connections to those amenities, and the limited availability of accessible public transport services. This is contrary to the aims of the NPPF (2023) and the Surrey Local Transport Plan 4 (2022) and the Tandridge Local Plan (2008 and 2014).

2) The proposals would result in an unacceptable impact to highway capacity, in particular at the roundabout junction of Salmons Lane West, Buxton Lane and Ninehams Road, contrary to the aims of the NPPF (2021) and the Surrey Local Transport Plan 4 (2022) and the Tandridge Local Plan (2008 and 2014).

Detailed justification

Reason 1 - Sustainable transport

Table 3.3 within the Transport Assessment (TA) demonstrates that local amenities, in particular including food retail, are mostly located in excess of a half-hour return journey by foot and walking this route during the site visit undertaken by the CHA demonstrated that the actual journey times are longer than those indicated in the TA, partly due to the additional time spent attempting to cross over roads along the route. Given overall distance to local amenities and the lack of dedicated cycle infrastructure, residents are far more likely to make regular journeys to local amenities by car.

The TA provides details of likely mode share using 2011 Census journey to work data for the Middle Super Output Area (MSOA) of Tandridge 003 in Table 5.2. This data supports the above assessment in that it demonstrates only a 7% mode share for walking and 1% for cycling. It should be noted that the site is at the northern end of the MSOA and that the majority of people within the dataset would live closer to the local amenities than residents of the proposed development would. As such, it is likely that the actual mode share of the proposed development would likely include even lower figures for walking and cycling.

The TA states that residents of the proposed development would not be reliant on the private car on the basis of the 15% mode share for rail indicated by the 2011 Census Data. This does not account for how residents would be travelling to and from the railway station, however. Paragraph 3.21 acknowledges that the residents are not likely to travel by foot to the railway station and claims that they will instead cycle however this is considered equally unlikely given the lack of suitable infrastructure between the development and the station, particularly along Salmons Lane, and that return journeys would be uphill. It can therefore be reasonably concluded that the 15% of residents expected to commute by rail would be most likely to travel to the station by private car.

This point has a bearing on the likely motor vehicle trip generation of the proposed development, which is assessed further below in the comments under point 2.

It should further be noted that there is limited parking availability at the nearby railway stations and that the proposed development would likely result in vehicles parking on the public highway in potentially unsuitable locations. Were the proposals to be granted consent against this recommendation, further consideration should first be given to assessing this issue. This is particularly the case for Whyteleafe South Station, which is the nearest to the site.

The proposed improvements to bus stop infrastructure are welcomed and appropriate however table 3.1 in the TA shows that the available services run only hourly, reducing the likelihood of any significant mode share for bus journeys being achieved. This conclusion is supported by the Census data presented in table 5.2, which shows a 6% mode share for bus, minibus and coach.

Reason 2 - Impact on the performance of the public highway

The TA demonstrates that the Nineham Road arm of the above junction is expected to perform with an RFC value of 0.94 in the 2028 AM peak hour without the impacts of the proposed development, which would then further worsen performance at the junction. This represents operating at 94% of the maximum theoretical capacity of this arm of the junction, which is well above the generally recommended maximum preferable RFC of 0.85 (or 85%) to ensure that some resilience is retained.

The TA shows a worsening to an RFC value of 0.95 on this arm of the junction in the AM peak hour. While this is only represents a worsening of 0.01 (or 1%), the fact that this arm is so close to maximum theoretical capacity makes any further worsening represent a potentially significant impact to the safe and effective operation of the public highway.

The above concern is worsened in the context of the additional mode share data presented within Table 5.2. While use of vehicle trip rates from TRICS is a generally acceptable method of forecasting trip generation for development proposals, rationalisation using local data such as that provided by the Census can provide a better local insight into the actual likely levels of vehicle movements to be generated by the proposals.

The figures which the TA applies to modelling the impacts at local junctions are 45 and 48 trips in the AM and PM peak hours, respectively (calculated here by combining the trip numbers detailed in Table 6.1). Using the mode split data provided in Table 5.2, however, the likely car

trip generation alone would be 64 and 54 trips in the AM and PM peak hours, respectively. This is based on applying the Census mode share data to the total person trips forecasted by TRICS.

Given that trips made by rail would most likely start with a car trip to the railway station, as explained above, there is a strong argument that the rail mode share should be added to the expected car trip generation, which would then result in a total of 79 and 66 vehicle movements in the AM and PM peak hours, respectively. The table overleaf summarises the different total site trip generation figures which can be reached on this basis:

Time period	Vehicle movements		
	Applied to modelling	Based on share data (car only)	Based on mode share data (car plus rail)
AM peak hour	45	65	79
PM peak hour	48	54	66

On the basis of the above, it is considered that the actual potential impacts of the proposed development on highway capacity may in fact be worse than suggested by the modelling data provided. It is however recognised that the trips to rail are not likely to route through the Salmons Lane West, Buxton Lane and Ninehams Road roundabout junction.

Note to Planning Officer

If the Local Planning Authority is minded to grant planning permission against the above recommendation, it is recommended that further engagement should be undertaken with the County Highways Authority in order that appropriate planning conditions can be identified to minimise the impacts of the proposed development on the highway network.

Appendix B

Motion Highway Response (January 2024)

Highways Response

Site:	Land off Salmons Lane West, Caterham
Prepared by:	DM
Approved by:	DM
Date:	16 January 2024

motion
84 North Street
Guildford
GU1 4AU

Tel: 01483 531300
www.motion.co.uk

1.0 Introduction

1.1 This highways note has been prepared to respond to comments raised by Surrey County Council (SCC) in response to a planning application (2023/878) in relation to the development of 87 dwellings on Land off Salmons Lane West, Caterham (herein referred to as 'the site'). It responds directly to comments raised where relevant.

2.0 Sustainable Development

2.1 In respect of the sites proximity to amenities, SCC stated that:

"It should be noted that the site is at the northern end of the MSOA and that the majority of people within the dataset would live closer to the local amenities than residents of the proposed development would. As such, it is likely that the actual mode share of the proposed development would likely include even lower figures for walking and cycling."

2.2 The above disregards the fact that being at the northern end of the MSOA means that the site is located closer to three railway stations than most of the remainder of MSOA. It is also located within one kilometre of four schools (considered further below). On this basis, it is entirely reasonable to assume that if the entire MSOA can attract 15% of trips by rail, then the site could very well exceed this distance. Surrey then incorrectly state that:

"It can therefore be reasonably concluded that the 15% of residents expected to commute by rail would be most likely to travel to the station by private car."

2.3 The above is an assumption that cannot be supported, especially when it is noted that Whyteleafe South station is located a 1.3km from the site, whilst both Whyteleafe and Upper Warlingham Stations are located circa 1.8 kilometres from the site. Further consideration of walk distances is considered below.

2.4 Figure 2.1 below illustrates the close proximity of the site to 3x railway stations, whilst the site is also very close to 4x schools on Whyteleafe Road.

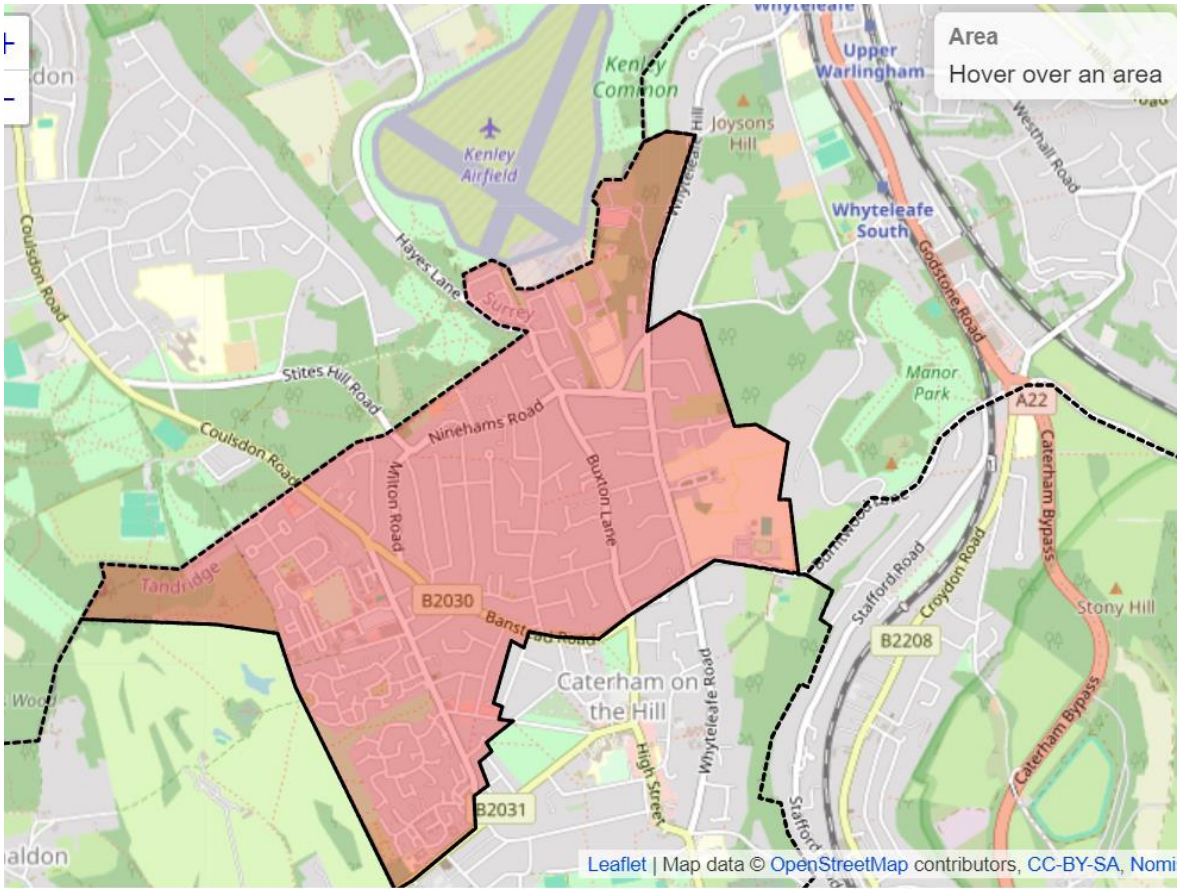


Figure 2.1 – Output Area Highlighting Sites Close Proximity to 3x Railway Stations

2.5 SCC state within their response that:

"Table 3.3 within the Transport Assessment (TA) demonstrates that local amenities, in particular including food retail, are mostly located in excess of a half-hour return journey by foot and walking this route during the site visit undertaken by the CHA demonstrated that the actual journey times are longer than those indicated in the TA, partly due to the additional time spent attempting to cross over roads along the route."

2.6 Table 3.3, replicated below as Table 2.1 for clarity, highlights how a significant number of amenities including food retail, leisure, schools, and medical facilities are located within a 15 minute walk. The walk distances are based on a standard measure of 1.33 metres per second (80 metres per minute), which is the standard walk speed assumed in relevant guidance. Whilst not relevant to Surrey, this walk speed is the default for Transport for London's PTAL calculator used throughout Greater London.

2.7 As set out within the Transport Assessment, The Chartered Institution of Highways and Transportation released two documents, 'Planning for Walking' in April 2015 and 'Planning for Cycling' in October 2014. The documents provide an insight into the sustainable methods of transport, including:

- *"Across Britain about 80% of journeys shorter than 1 mile are made wholly on foot…but beyond that distance cars are the dominant modes" (Planning for Walking, 2015).*
- *"Majority of cycling trips are used for short distances, with 80% being less than five miles and with 40% being less than two miles" (Planning for Cycling, 2014)."*

2.8 As shown below, there are many facilities located within 1.6 kilometres (1 mile), suggesting there is real scope for many trips to be undertaken on-foot.

Amenity	Distance	Walk Time	Cycle Time
Education Facilities			
Audley Primary School	550m	7 minutes	3 minutes
St Francis Catholic Primary School	650m	8 minutes	4 minutes
Sunnydown School	650m	8 minutes	4 minutes
De Stafford School	1,000m	13 minutes	5 minutes
Hillcroft Primary School & Nursery	1,400m	18 minutes	5 minutes
Shops			
Skeltons Convenience Store	1,100m	14 minutes	4 minutes
Co-op Food Caterham	1,300m	16 minutes	4 minutes
Tesco Superstore	1,700m	22 minutes	8 minutes
Health Facilities			
Townend Dental Practice	1,200m	16 minutes	4 minutes
Chemitex Pharmacy	1,400m	17 minutes	5 minutes
Chaldon Road Surgery	1,500m	19 minutes	6 minutes
Townhill Medical Practice	1,600m	21 minutes	7 minutes
Leisure Facilities			
Townend Recreation Ground	1,100m	14 minutes	4 minutes
Caterham Hill Library	1,500m	19 minutes	6 minutes
Westway Allotments	1,600m	20 minutes	6 minutes

Table 2.1 – Amenities within Walking Distance of the Site

2.9 The above serves to show how there are four schools within one kilometre, all of which could be utilised by future residents. It also highlights how the response from Surrey suggesting amenities are inaccessible is incorrect.

2.10 It is important to quote section 6.4 in Planning for Walking, which states that "*Most people will only walk if their destination is less than a mile away.*" This clearly suggests that the one mile is a single journey either there or back, and not both legs of the journey. This is key in highlighting how the site is accessible to many amenities, and the comments raised by Surrey incorrect.

2.11 Surrey also state that "*The actual journey times are longer than those indicated in the TA, partly due to the additional time spent attempting to cross over roads along the route*."

2.12 Consideration of improved crossing facilities are summarised within the following paragraphs.

3.0 Future Mitigation Measures

3.1 The development proposals include appropriate mitigation measures to address the increase in trips generated by the site, as set out in the Transport Assessment. However further mitigation has been prepared to further reinforce the sustainable credentials of the site.

Footway and Crossing Improvements

3.2 Footway and pedestrian crossing improvements would include a new zebra crossing point provided with dropped kerbs and tactile paving across Salmons Lane West, enabling pedestrian access to the bus stop on the southern edge of Salmons Lane West. This is a material improvement over the application submission, which only proposed an informal crossing. A relevant drawing is illustrated within **Appendix A**.

3.3 It is also proposed to introduce a new informal crossing point provided with dropped kerbs and tactile paving on Whyteleafe Hill, connecting with Salmons Lane. This will aid pedestrians routeing north towards Whyteleafe Station. This is also shown in **Appendix A**.

Local Plan Contributions

3.4 The aforementioned draft Local Plan allocation also requires contributions towards various highway related measures. The drawings also attached as **Appendix A** show informal crossing points at the following locations:

- Pedestrian access improvements across Buxton Lane;
- Pedestrian crossing at Salmons Lane/Whyteleafe Road (as noted above); and
- Pedestrian crossing at Salmons Lane West/Whyteleafe Road to connect with nearby schools.

3.5 It is envisaged that the above would form part of a Section 278 agreement. The pedestrian crossing at Salmons Lane/Whyteleafe Road aids pedestrians walking to the railway station, whilst the pedestrian crossing at Salmons Lane West/Whyteleafe Road will aid connections towards nearby schools. Finally, the crossing on Buxton Lane aids pedestrians routing south towards local facilities.

3.6 The above series of crossing improvements are considered a material improvement over the existing arrangement (and that proposed in the Transport Assessment), and aid in ensuring safe access for pedestrians to nearby facilities.

4.0 Traffic Modelling

4.1 In respect of junction modelling, SCC state the following:

"The TA shows a worsening to an RFC value of 0.95 on this arm of the junction in the AM peak hour. While this is only represents a worsening of 0.01 (or 1%), the fact that this arm is so close to maximum theoretical capacity makes any further worsening represent a potentially significant impact to the safe and effective operation of the public highway.

4.2 This is considered excessive when you consider that the modelling outputs do not predict queuing to increase materially. A worsening of 0.01 RFC is immaterial and cannot reasonably be assumed to have a negative impact. Queuing could increase by up to one vehicle, with a negligible increase in driver delay.

4.3 It must be noted that the assessment considers the future year scenario (five years post-submission). It is therefore robust in accounting for future traffic flow on the network. It also does not account for any reductions in traffic flow resulting from sustainable travel measures set out in the Travel Plan (or indeed this highways response).

4.4 The assessment is therefore robust and takes account of future growth. Critical to assessing the impact is paragraph 111 of the National Planning Policy Framework (NPPF), which states that:

"Development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network would be severe."

4.5 There is no assertion that the development will impact on highway safety, with the Transport Assessment demonstrating that there is no existing accident record on surrounding roads that needs addressing. The above impact, as set out in detail in the Transport Assessment cannot reasonably be construed as being a 'severe' impact.

4.6 SCC continue by stating that:

The above concern is worsened in the context of the additional mode share data presented within Table 5.2. While use of vehicle trip rates from TRICS is a generally acceptable method of forecasting trip generation for development proposals, rationalisation using local data such as that provided by the Census can provide a better local insight into the actual likely levels of vehicle movements to be generated by the proposals.

4.7 A revised worst-case scenario has been prepared that utilises the census data set out in Table 5.2 in the Transport Assessment. This is replicated below for clarity in Table 4.1.

	Census Modal Split	Weekday AM Peak	
		Arr	Dep
Car Driver	64%	12 (+1)	52 (+16)

Table 4.1 – Census Modal Split (Tandridge 003)

4.8 The above serves to show how an additional 17 vehicles are added to the road network by adopting the census data output, compared to that shown by TRICS (and assessed in the modelling work).

4.9 It must be noted as set out in the Transport Assessment that 37% of trips generated from the development will use Salmon lane whilst 63% of trips will use Salmon Lane West. Therefore not all development traffic will utilise the Nineham Road roundabout.

4.10 A total of 13 additional vehicle movements would route via the Ninehams Road roundabout. This has been distributed based on the same census trip distribution as per the Transport Assessment, and is summarised in Table 4.2 below.

	Salmon Lane			Salmon Lane West		
	Arrival	Departure	Total	Arrival	Departure	Total
AM Peak (08:00-09:00)	4	19 (+6)	23 (+6)	8 (+1)	33 (+12)	41 (+13)

Table 4.2 – Trip Distribution

4.11 The amended results for the morning peak hour, which represents the busiest time period is summarised in Table 4.3 below. The output is attached as **Appendix B**.

Arm	2028 AM Peak Baseline			2028 AM Peak with Development		
	RFC	Queue (veh)	Delay (s)	RFC	Queue	Delay (s)
Salmons Lane West	0.56	1	12	0.61	2	13
Buxton Lane (S)	0.48	1	8	0.49	1	10
Nineham Road	0.94	9	82	0.95	10	88
Buxton Lane (N)	0.76	3	29	0.77	3	30

Table 4.3: 2028 Weekday AM Development Results Summary

4.12 The additional traffic during the morning peak associated with the uplifted traffic flow primarily impacts on Salmons Lane West, as there would be additional vehicles routing south from this arm. These would all constitute departures from the site and not arrivals. No additional vehicles route in either direction via Ninehams Road, as the census data shows only 9% of development trips using this arm.

4.13 As such whilst the junction as a whole would experience an increase in traffic flow which marginally increases the RFC and delay on both Salmons Lane West and Buxton Lane, it will not change the RFC/delay on Nineham Road above that set out in the original Transport Assessment. Therefore even with additional vehicles using the junction, the same conclusion drawn in the Transport Assessment would apply.

4.14 On this basis, the arguments set out in paragraphs 4.2-4.5 would still apply. SCC continue by stating that:

"Given that trips made by rail would most likely start with a car trip to the railway station… there is a strong argument that the rail mode share should be added to the expected car trip generation."

4.15 The above is considered unreasonable, and is an assertion that has not been justified. As set out in this response note, there are three railway stations close to the site, two of which have direct footways and are located within an accepted walk distance. This response note includes highway improvements to offer additional crossing facilities for pedestrians.

4.16 In any case the above is not relevant to this assessment; even if some of those trips assigned to train trips are undertaken partly by car, this would route vehicles to the east and not to the west (therefore not accessing the Nineham Road roundabout). The junction modelling assessments raise no concern in respect of traffic impact to the east of the site.

5.0 Summary

5.1 This highways note has been prepared to respond to comments raised by Surrey County Council (SCC) in response to a planning application (2023/878) in relation to the development of 87 dwellings on Land off Salmons Lane West, Caterham (herein referred to as 'the site').

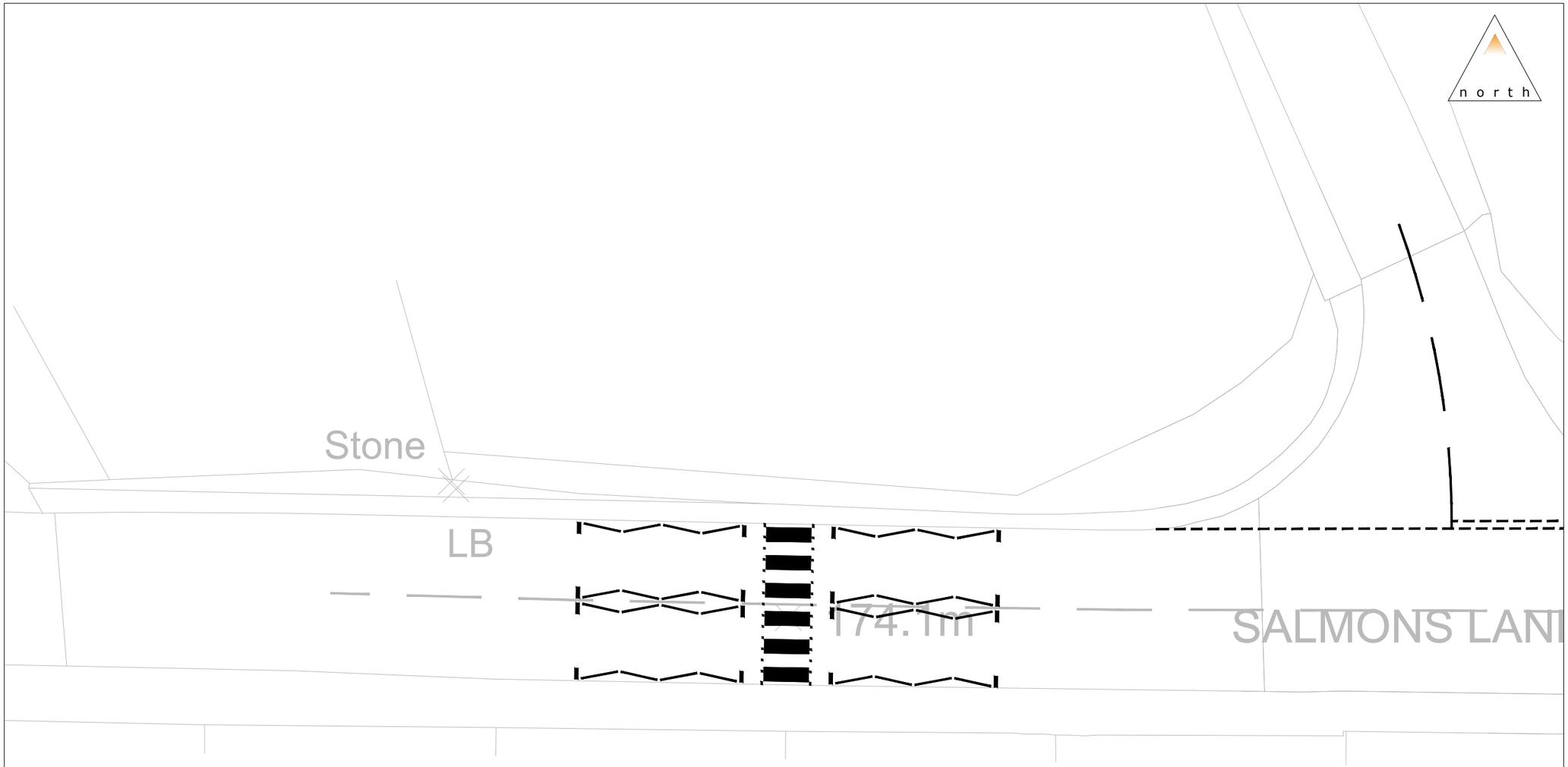
5.2 It concludes that:

- The site is located in a sustainable location in respect of amenities and public transport;
- Further mitigation is proposed to reinforce the sustainability credentials of the site; and
- Additional junction modelling has been undertaken which reinforces the conclusion that not only is the assessment work robust, but the development will have an immaterial impact on network performance.

5.3 In view of the above, the proposed development is considered to be acceptable in transport terms and meets with local and national policy criteria. The assessment work undertaken has shown that there would not be any demonstrable harm arising from the proposed scheme and it will not cause any severe impacts. Therefore, there are no traffic or transport related reasons why the development should not be granted planning consent.

Appendix A

Further Mitigation Measures



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Rev:	Description:	Date:	Rev By:	Chk'd:

motion

9 Greyfriars, Reading, Berkshire, RG1 1NU

T: 0118 206 2930

Guildford - London - Reading

www.motion.co.uk

Project:
Victor Beamish Avenue, Caterham

Title:
Potential Zebra Crossing Design on Salmons Lane

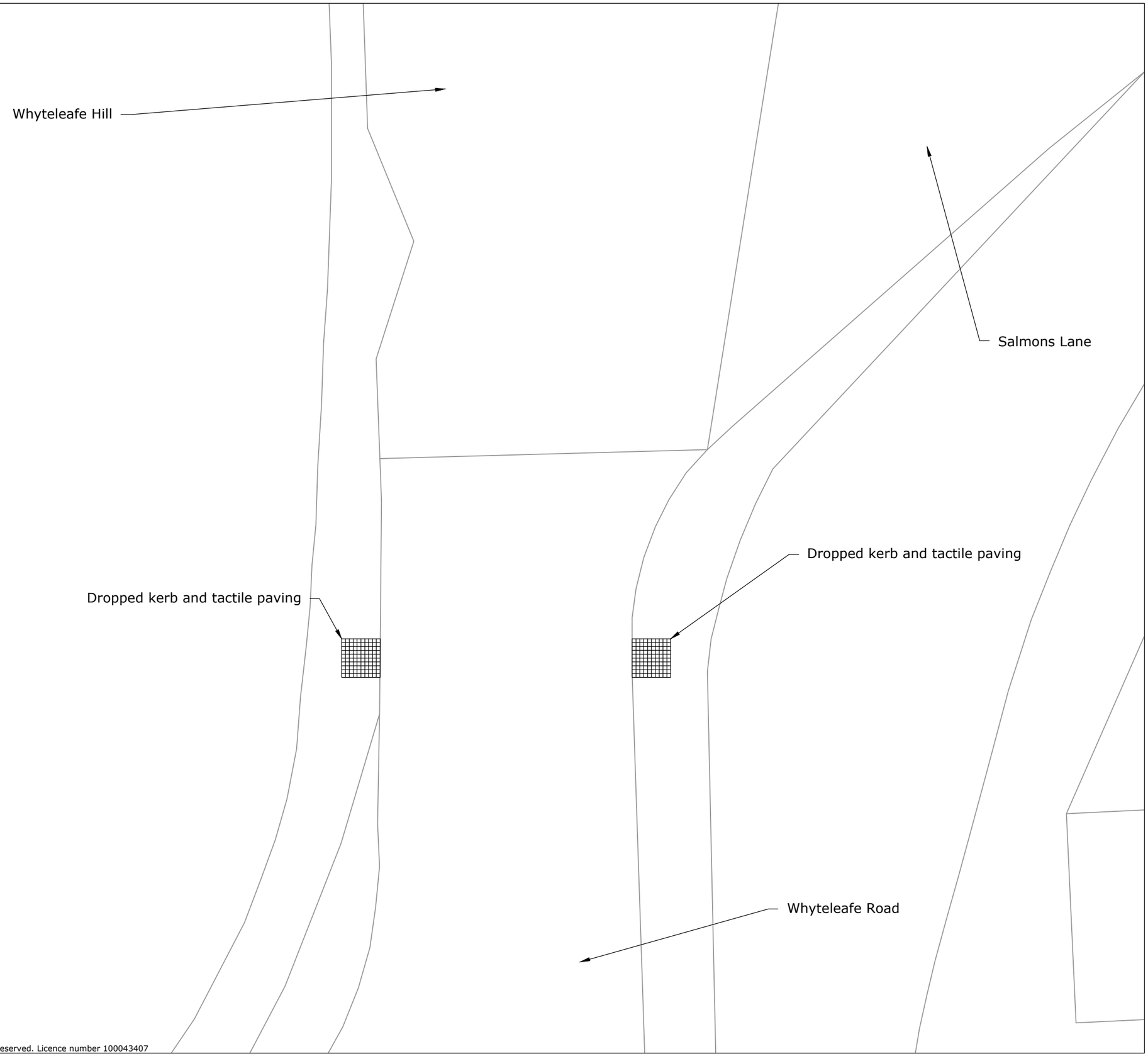
Client:

Drawing Status:

Scale: 1:250 (@ A3) Date:11/01/2024

Drawn: DR Checked: DM Approved: DM

Drawing: 2106055-03 Revision:



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Rev:	Description:	Date:	Rev By:	Chk'd:

motion

Guildford - London - Reading
www.motion.co.uk

Project:
Salmons Lane West, Caterham

Title:
Potential Dropped Kerb and Tactile Paving on Whyteleafe Road

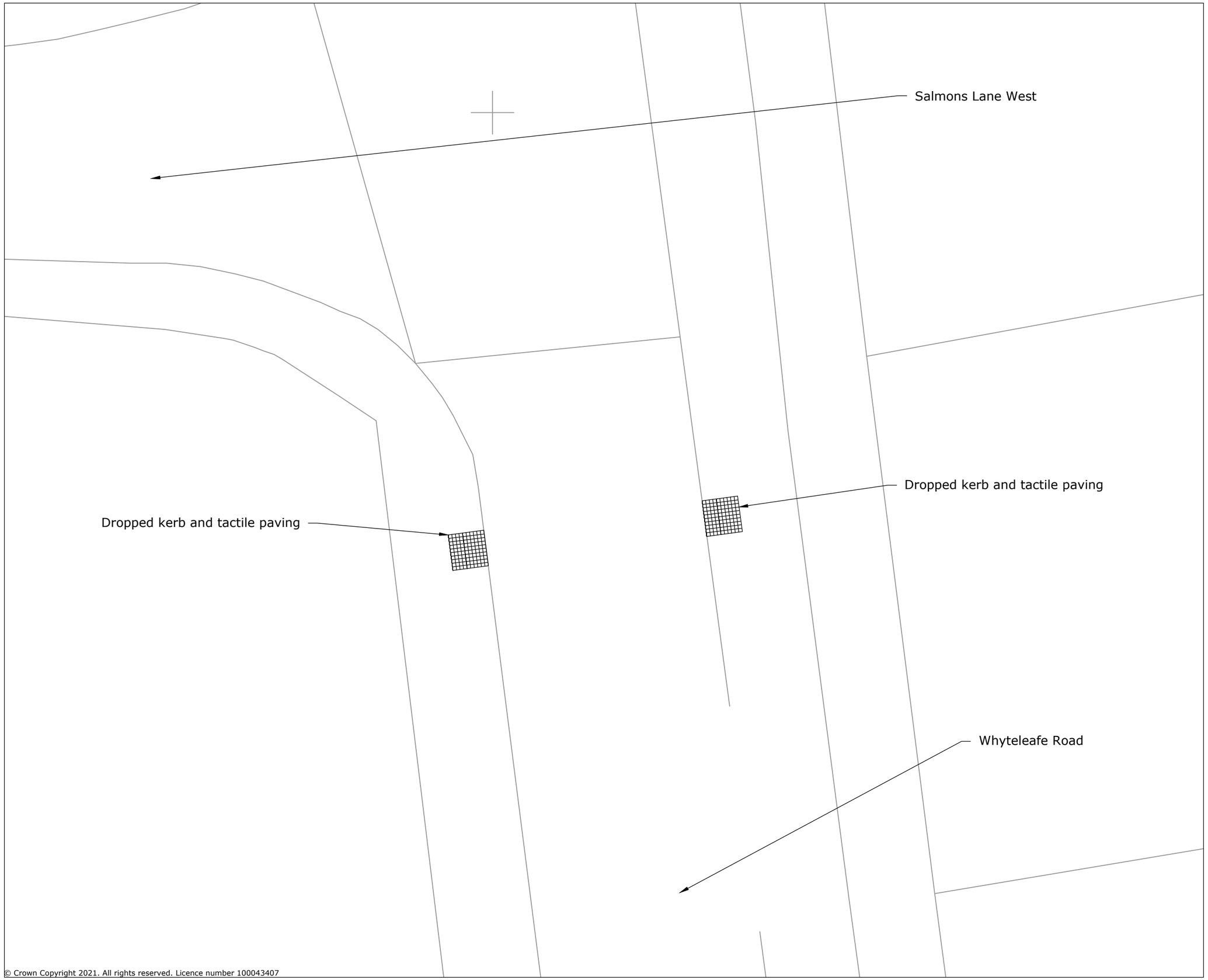
Client:
Daniel Watney Chartered Surveyors

Drawing Status:

Scale: 1:100 (@ A3) Date: 15/01/24

Drawn: EF Checked: DM Approved: DM

Drawing: 2106055-04 Revision:



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Rev:	Description:	Date:	Rev By:	Chk'd:

motion

Guildford - London - Reading
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Project:
Salmons Lane West, Caterham

Title:
Potential Dropped Kerb and Tactile Paving on Whyteleafe Road

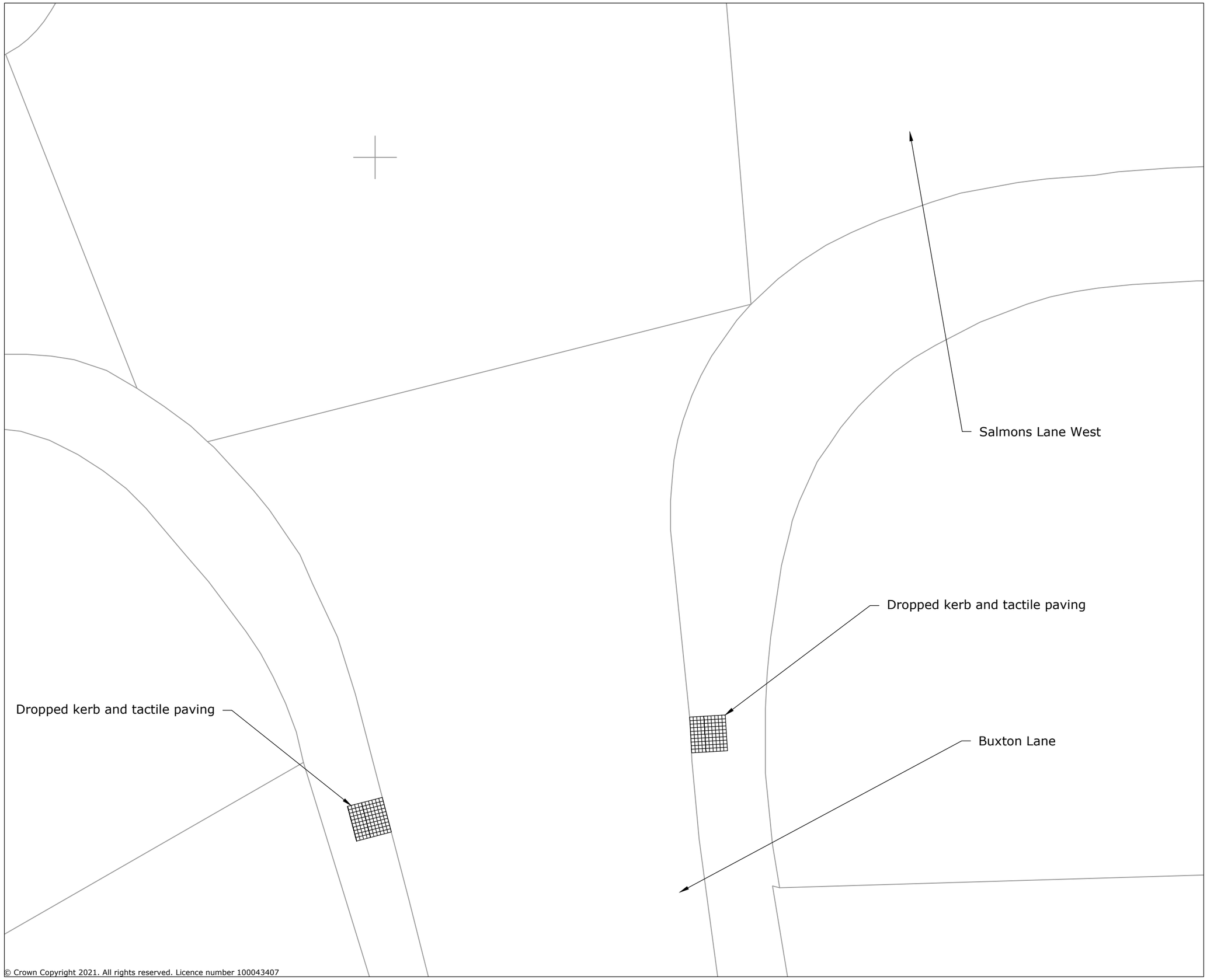
Client:
Daniel Watney Chartered Surveyors

Drawing Status:

Scale: 1:100 (@ A3) Date: 15/01/24

Drawn: EF Checked: DM Approved: DM

Drawing: Revision:
2106055-05



Rev:	Description:	Date:	Rev By:	Chk'd:

motion

Guildford - London - Reading
www.motion.co.uk

Project:
Salmons Lane West, Caterham

Title:
Potential Dropped Kerb and Tactile Paving on Buxton Lane

Client:
Daniel Watney Chartered Surveyors

Drawing Status:

Scale: 1:100 (@ A3) Date: 15/01/24

Drawn: EF Checked: DM Approved: DM

Drawing: 2106055-06 Revision:

C:\Users\eford\Motion\StaffSite - Dwcate 2106055\Drawings\2106055-04 05 And 06.dwg

Appendix B

Updated Junction Modelling Output

Junctions 9

ARCADY 9 - Roundabout Module

Filename: Mini Rbt (2024).j9
Path: C:\Users\davidmcmurtary\Documents
Report generation date: 16/01/2024 13:05:05

Summary of junction performance

	AM					PM				
	Set ID	Queue (Veh)	Delay (s)	RFC	LOS	Set ID	Queue (Veh)	Delay (s)	RFC	LOS
	2023									
1 - Salmons Lane West	D1	1.1	10.72	0.53	B	D2	1.0	9.56	0.51	A
2 - Buxton Lane (s)		0.8	8.01	0.45	A		0.7	7.73	0.42	A
3 - Ninehams Road		6.4	59.74	0.89	F		2.2	24.96	0.70	C
4 - Buxton Lane (n)		2.5	24.59	0.72	C		1.2	13.60	0.55	B
	2028									
1 - Salmons Lane West	D3	1.2	11.56	0.56	B	D4	1.1	10.21	0.54	B
2 - Buxton Lane (s)		0.9	8.42	0.48	A		0.8	8.11	0.44	A
3 - Ninehams Road		9.3	82.41	0.94	F		2.6	28.93	0.73	D
4 - Buxton Lane (n)		3.0	29.23	0.76	D		1.3	14.78	0.58	B
	2028 + Development									
1 - Salmons Lane West	D7	1.5	13.02	0.61	B	D8	1.2	10.53	0.55	B
2 - Buxton Lane (s)		0.9	8.61	0.49	A		0.9	8.50	0.47	A
3 - Ninehams Road		10.0	88.00	0.95	F		2.9	32.38	0.76	D
4 - Buxton Lane (n)		3.1	30.18	0.77	D		1.4	15.68	0.59	C

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

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

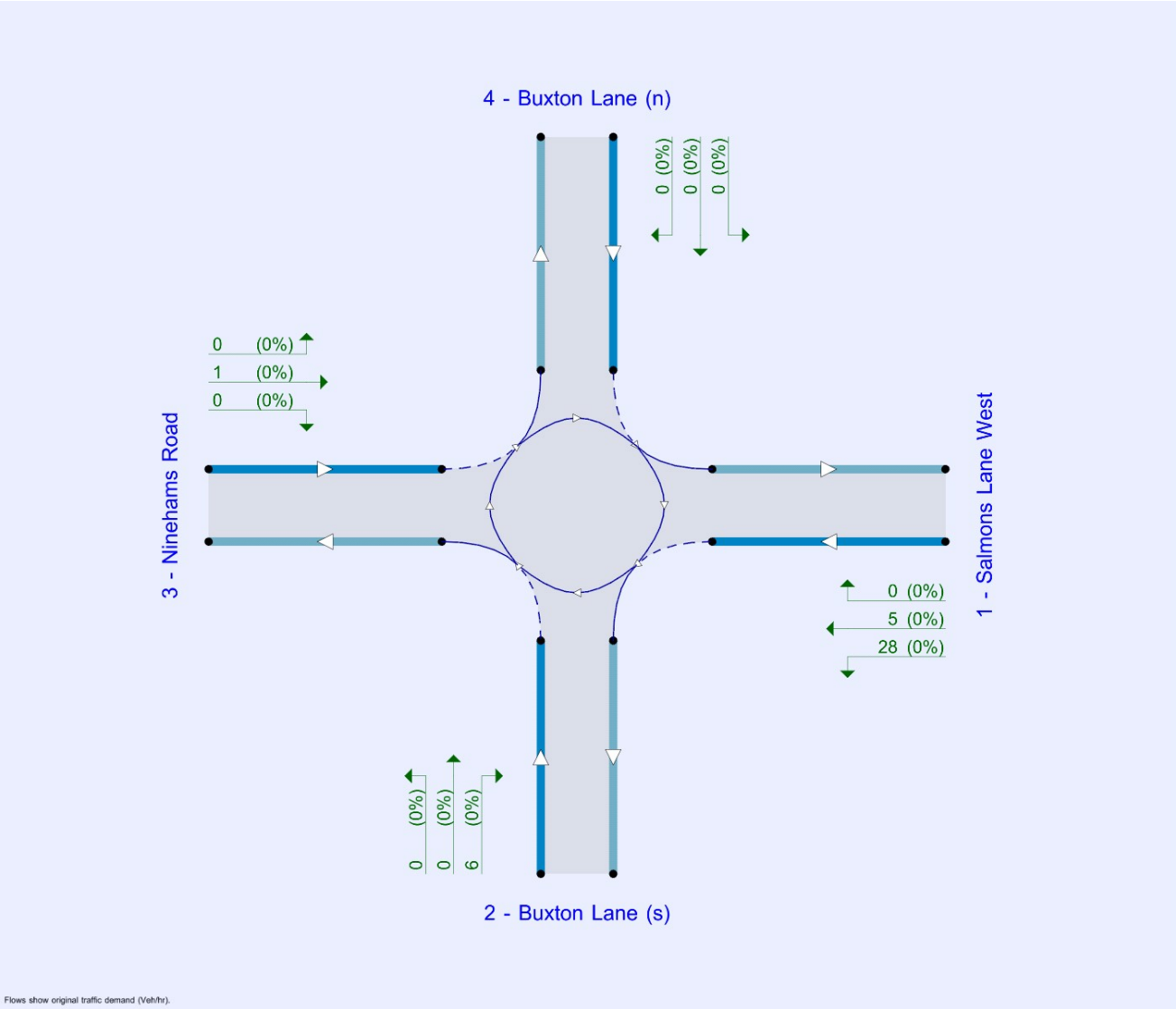
File summary

File Description

Title	
Location	
Site number	
Date	19/05/2023
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	MOTION\meganslade
Description	

Units

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



The junction diagram reflects the last run of Junctions.

Analysis Options

Mini-roundabout model	Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
JUNCTIONS 9	5.75				0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically	Relationship type	Relationship
D1	2023	AM	ONE HOUR	08:00	09:30	15	✓		
D2	2023	PM	ONE HOUR	17:00	18:30	15	✓		
D3	2028	AM	ONE HOUR	08:00	09:30	15	✓	Simple	D1*1.0386
D4	2028	PM	ONE HOUR	17:00	18:30	15	✓	Simple	D2*1.038
D5	Development	AM	ONE HOUR	08:00	09:30	15			
D6	Development	PM	ONE HOUR	17:00	18:30	15			
D7	2028 + Development	AM	ONE HOUR	08:00	09:30	15	✓	Simple	D3+D5
D8	2028 + Development	PM	ONE HOUR	17:00	18:30	15	✓	Simple	D4+D6

Analysis Set Details

ID	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	✓	100.000	100.000

2023, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Demand Set Relationship	D7 - 2028 + Development, AM	Demand Set relationships are chained. This may slow down the file.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout		1, 2, 3, 4	26.57	D

Junction Network Options

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

Arms

Arms

Arm	Name	Description
1	Salmons Lane West	
2	Buxton Lane (s)	
3	Ninehams Road	
4	Buxton Lane (n)	

Mini Roundabout Geometry

Arm	Approach road half-width (m)	Minimum approach road half-width (m)	Entry width (m)	Effective flare length (m)	Distance to next arm (m)	Entry corner kerb line distance (m)	Gradient over 50m (%)	Kerbed central island
1 - Salmons Lane West	4.05	4.05	4.72	2.9	14.86	9.72	0.0	
2 - Buxton Lane (s)	3.85	3.85	3.97	5.0	13.22	9.40	0.0	
3 - Ninehams Road	2.74	2.74	3.26	3.5	8.78	2.00	5.4	
4 - Buxton Lane (n)	3.23	3.23	3.33	2.0	16.14	13.77	0.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1 - Salmons Lane West	0.646	1012
2 - Buxton Lane (s)	0.628	1034
3 - Ninehams Road	0.529	679
4 - Buxton Lane (n)	0.616	831

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2023	AM	ONE HOUR	08:00	09:30	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - Salmons Lane West		ONE HOUR	✓	345	100.000
2 - Buxton Lane (s)		ONE HOUR	✓	340	100.000
3 - Ninehams Road		ONE HOUR	✓	378	100.000
4 - Buxton Lane (n)		ONE HOUR	✓	340	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - Salmons Lane West	2 - Buxton Lane (s)	3 - Ninehams Road	4 - Buxton Lane (n)
From	1 - Salmons Lane West	0	115	178	52
	2 - Buxton Lane (s)	142	0	45	153
	3 - Ninehams Road	192	115	0	71
	4 - Buxton Lane (n)	53	242	45	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - Salmons Lane West	2 - Buxton Lane (s)	3 - Ninehams Road	4 - Buxton Lane (n)
From	1 - Salmons Lane West	0	2	1	2
	2 - Buxton Lane (s)	4	0	0	1
	3 - Ninehams Road	1	0	0	3
	4 - Buxton Lane (n)	2	0	4	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - Salmons Lane West	0.53	10.72	1.1	B	317	475
2 - Buxton Lane (s)	0.45	8.01	0.8	A	312	468
3 - Ninehams Road	0.89	59.74	6.4	F	347	520
4 - Buxton Lane (n)	0.72	24.59	2.5	C	312	468

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Salmons Lane West	260	65	299	806	0.322	258	288	0.0	0.5	6.541	A
2 - Buxton Lane (s)	256	64	205	884	0.289	254	351	0.0	0.4	5.700	A
3 - Ninehams Road	285	71	260	532	0.535	280	200	0.0	1.1	14.045	B
4 - Buxton Lane (n)	256	64	334	617	0.415	253	206	0.0	0.7	9.831	A

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Salmons Lane West	310	78	359	768	0.404	309	346	0.5	0.7	7.839	A
2 - Buxton Lane (s)	306	76	246	859	0.356	305	422	0.4	0.5	6.494	A
3 - Ninehams Road	340	85	311	505	0.674	337	240	1.1	1.9	21.007	C
4 - Buxton Lane (n)	306	76	401	575	0.531	304	247	0.7	1.1	13.200	B

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Salmons Lane West	380	95	434	720	0.528	378	418	0.7	1.1	10.484	B
2 - Buxton Lane (s)	374	94	301	825	0.454	373	511	0.5	0.8	7.955	A
3 - Ninehams Road	416	104	381	467	0.891	402	293	1.9	5.5	47.068	E
4 - Buxton Lane (n)	374	94	482	524	0.714	370	300	1.1	2.3	22.558	C

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Salmons Lane West	380	95	441	715	0.531	380	424	1.1	1.1	10.718	B
2 - Buxton Lane (s)	374	94	303	824	0.454	374	518	0.8	0.8	8.009	A
3 - Ninehams Road	416	104	382	467	0.892	413	295	5.5	6.4	59.742	F
4 - Buxton Lane (n)	374	94	491	519	0.722	374	303	2.3	2.5	24.590	C

09:00 - 09:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Salmons Lane West	310	78	371	760	0.408	312	358	1.1	0.7	8.055	A
2 - Buxton Lane (s)	306	76	249	857	0.357	307	433	0.8	0.6	6.551	A
3 - Ninehams Road	340	85	313	504	0.675	357	243	6.4	2.2	26.778	D
4 - Buxton Lane (n)	306	76	418	565	0.541	311	252	2.5	1.2	14.430	B

09:15 - 09:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Salmons Lane West	260	65	306	802	0.324	261	294	0.7	0.5	6.660	A
2 - Buxton Lane (s)	256	64	208	883	0.290	257	358	0.6	0.4	5.752	A
3 - Ninehams Road	285	71	262	531	0.536	289	203	2.2	1.2	15.097	C
4 - Buxton Lane (n)	256	64	342	612	0.418	258	209	1.2	0.7	10.228	B

2023, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Demand Set Relationship	D7 - 2028 + Development, AM	Demand Set relationships are chained. This may slow down the file.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout		1, 2, 3, 4	13.68	B

Junction Network Options

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	2023	PM	ONE HOUR	17:00	18:30	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - Salmons Lane West		ONE HOUR	✓	358	100.000
2 - Buxton Lane (s)		ONE HOUR	✓	308	100.000
3 - Ninehams Road		ONE HOUR	✓	296	100.000
4 - Buxton Lane (n)		ONE HOUR	✓	291	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - Salmons Lane West	2 - Buxton Lane (s)	3 - Ninehams Road	4 - Buxton Lane (n)
From	1 - Salmons Lane West	0	88	198	72
	2 - Buxton Lane (s)	109	0	20	179
	3 - Ninehams Road	167	78	0	51
	4 - Buxton Lane (n)	35	195	61	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - Salmons Lane West	2 - Buxton Lane (s)	3 - Ninehams Road	4 - Buxton Lane (n)
From	1 - Salmons Lane West	0	1	0	0
	2 - Buxton Lane (s)	0	0	0	0
	3 - Ninehams Road	0	0	0	0
	4 - Buxton Lane (n)	0	1	2	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - Salmons Lane West	0.51	9.56	1.0	A	329	493
2 - Buxton Lane (s)	0.42	7.73	0.7	A	283	424
3 - Ninehams Road	0.70	24.96	2.2	C	272	407
4 - Buxton Lane (n)	0.55	13.60	1.2	B	267	401

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Salmons Lane West	270	67	249	848	0.318	268	232	0.0	0.5	6.185	A
2 - Buxton Lane (s)	232	58	247	878	0.264	230	269	0.0	0.4	5.543	A
3 - Ninehams Road	223	56	269	536	0.416	220	209	0.0	0.7	11.297	B
4 - Buxton Lane (n)	219	55	264	661	0.331	217	226	0.0	0.5	8.070	A

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Salmons Lane West	322	80	299	815	0.395	321	278	0.5	0.6	7.276	A
2 - Buxton Lane (s)	277	69	297	847	0.327	276	323	0.4	0.5	6.300	A
3 - Ninehams Road	266	67	323	508	0.524	265	250	0.7	1.1	14.718	B
4 - Buxton Lane (n)	262	65	317	629	0.416	261	271	0.5	0.7	9.756	A

17:30 - 17:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Salmons Lane West	394	99	365	772	0.510	393	340	0.6	1.0	9.443	A
2 - Buxton Lane (s)	339	85	363	806	0.421	338	395	0.5	0.7	7.685	A
3 - Ninehams Road	326	81	395	469	0.694	322	306	1.1	2.1	23.718	C
4 - Buxton Lane (n)	320	80	386	587	0.546	319	331	0.7	1.2	13.324	B

17:45 - 18:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Salmons Lane West	394	99	368	771	0.511	394	342	1.0	1.0	9.558	A
2 - Buxton Lane (s)	339	85	364	805	0.421	339	397	0.7	0.7	7.729	A
3 - Ninehams Road	326	81	396	469	0.695	326	307	2.1	2.2	24.965	C
4 - Buxton Lane (n)	320	80	389	585	0.548	320	332	1.2	1.2	13.603	B

18:00 - 18:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Salmons Lane West	322	80	303	813	0.396	323	282	1.0	0.7	7.377	A
2 - Buxton Lane (s)	277	69	299	846	0.327	278	327	0.7	0.5	6.348	A
3 - Ninehams Road	266	67	325	507	0.525	270	252	2.2	1.1	15.477	C
4 - Buxton Lane (n)	262	65	322	626	0.418	263	273	1.2	0.7	9.984	A

18:15 - 18:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Salmons Lane West	270	67	253	845	0.319	270	235	0.7	0.5	6.267	A
2 - Buxton Lane (s)	232	58	250	877	0.264	232	273	0.5	0.4	5.592	A
3 - Ninehams Road	223	56	272	535	0.417	224	211	1.1	0.7	11.661	B
4 - Buxton Lane (n)	219	55	268	659	0.333	220	228	0.7	0.5	8.225	A

2028, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Demand Set Relationship	D7 - 2028 + Development, AM	Demand Set relationships are chained. This may slow down the file.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout		1, 2, 3, 4	34.08	D

Junction Network Options

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically	Relationship type	Relationship
D3	2028	AM	ONE HOUR	08:00	09:30	15	✓	Simple	D1*1.0386

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - Salmons Lane West		ONE HOUR	✓	358	100.000
2 - Buxton Lane (s)		ONE HOUR	✓	353	100.000
3 - Ninehams Road		ONE HOUR	✓	393	100.000
4 - Buxton Lane (n)		ONE HOUR	✓	353	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - Salmons Lane West	2 - Buxton Lane (s)	3 - Ninehams Road	4 - Buxton Lane (n)
From	1 - Salmons Lane West	0	119	185	54
	2 - Buxton Lane (s)	147	0	47	159
	3 - Ninehams Road	199	119	0	74
	4 - Buxton Lane (n)	55	251	47	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - Salmons Lane West	2 - Buxton Lane (s)	3 - Ninehams Road	4 - Buxton Lane (n)
From	1 - Salmons Lane West	0	2	1	2
	2 - Buxton Lane (s)	4	0	0	1
	3 - Ninehams Road	1	0	0	3
	4 - Buxton Lane (n)	2	0	4	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - Salmons Lane West	0.56	11.56	1.2	B	329	493
2 - Buxton Lane (s)	0.48	8.42	0.9	A	324	486
3 - Ninehams Road	0.94	82.41	9.3	F	360	540
4 - Buxton Lane (n)	0.76	29.23	3.0	D	324	486

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Salmons Lane West	270	67	310	799	0.338	268	299	0.0	0.5	6.750	A
2 - Buxton Lane (s)	266	66	213	880	0.302	264	365	0.0	0.4	5.833	A
3 - Ninehams Road	296	74	270	527	0.561	291	208	0.0	1.2	14.950	B
4 - Buxton Lane (n)	266	66	346	609	0.437	263	214	0.0	0.8	10.316	B

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Salmons Lane West	322	81	373	759	0.424	321	359	0.5	0.7	8.201	A
2 - Buxton Lane (s)	317	79	256	853	0.372	317	438	0.4	0.6	6.706	A
3 - Ninehams Road	353	88	323	498	0.709	349	249	1.2	2.2	23.480	C
4 - Buxton Lane (n)	317	79	416	566	0.561	316	257	0.8	1.2	14.271	B

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Salmons Lane West	395	99	448	711	0.555	393	431	0.7	1.2	11.242	B
2 - Buxton Lane (s)	389	97	312	818	0.476	388	528	0.6	0.9	8.347	A
3 - Ninehams Road	432	108	395	459	0.941	412	304	2.2	7.4	58.769	F
4 - Buxton Lane (n)	389	97	496	516	0.754	383	311	1.2	2.8	25.930	D

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Salmons Lane West	395	99	457	705	0.559	394	439	1.2	1.2	11.562	B
2 - Buxton Lane (s)	389	97	314	816	0.476	389	537	0.9	0.9	8.416	A
3 - Ninehams Road	432	108	397	459	0.942	425	306	7.4	9.3	82.409	F
4 - Buxton Lane (n)	389	97	507	509	0.764	388	314	2.8	3.0	29.226	D

09:00 - 09:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Salmons Lane West	322	81	389	749	0.430	324	376	1.2	0.8	8.510	A
2 - Buxton Lane (s)	317	79	259	851	0.373	319	454	0.9	0.6	6.776	A
3 - Ninehams Road	353	88	325	497	0.710	379	252	9.3	2.7	35.606	E
4 - Buxton Lane (n)	317	79	441	550	0.577	324	263	3.0	1.4	16.315	C

09:15 - 09:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Salmons Lane West	270	67	318	794	0.340	271	306	0.8	0.5	6.890	A
2 - Buxton Lane (s)	266	66	216	878	0.303	267	373	0.6	0.4	5.896	A
3 - Ninehams Road	296	74	272	526	0.562	301	210	2.7	1.3	16.390	C
4 - Buxton Lane (n)	266	66	356	603	0.441	268	217	1.4	0.8	10.832	B

2028, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Demand Set Relationship	D7 - 2028 + Development, AM	Demand Set relationships are chained. This may slow down the file.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout		1, 2, 3, 4	15.17	C

Junction Network Options

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically	Relationship type	Relationship
D4	2028	PM	ONE HOUR	17:00	18:30	15	✓	Simple	D2*1.038

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - Salmons Lane West		ONE HOUR	✓	372	100.000
2 - Buxton Lane (s)		ONE HOUR	✓	320	100.000
3 - Ninehams Road		ONE HOUR	✓	307	100.000
4 - Buxton Lane (n)		ONE HOUR	✓	302	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - Salmons Lane West	2 - Buxton Lane (s)	3 - Ninehams Road	4 - Buxton Lane (n)
From	1 - Salmons Lane West	0	91	206	75
	2 - Buxton Lane (s)	113	0	21	186
	3 - Ninehams Road	173	81	0	53
	4 - Buxton Lane (n)	36	202	63	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - Salmons Lane West	2 - Buxton Lane (s)	3 - Ninehams Road	4 - Buxton Lane (n)
From	1 - Salmons Lane West	0	1	0	0
	2 - Buxton Lane (s)	0	0	0	0
	3 - Ninehams Road	0	0	0	0
	4 - Buxton Lane (n)	0	1	2	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - Salmons Lane West	0.54	10.21	1.1	B	341	511
2 - Buxton Lane (s)	0.44	8.11	0.8	A	293	440
3 - Ninehams Road	0.73	28.93	2.6	D	282	423
4 - Buxton Lane (n)	0.58	14.78	1.3	B	277	416

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Salmons Lane West	280	70	258	842	0.332	278	241	0.0	0.5	6.363	A
2 - Buxton Lane (s)	241	60	257	873	0.276	239	279	0.0	0.4	5.669	A
3 - Ninehams Road	231	58	280	531	0.436	228	216	0.0	0.8	11.792	B
4 - Buxton Lane (n)	227	57	274	655	0.347	225	234	0.0	0.5	8.333	A

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Salmons Lane West	334	84	310	808	0.414	333	289	0.5	0.7	7.573	A
2 - Buxton Lane (s)	287	72	308	840	0.342	287	336	0.4	0.5	6.498	A
3 - Ninehams Road	276	69	335	501	0.551	274	260	0.8	1.2	15.756	C
4 - Buxton Lane (n)	272	68	329	622	0.437	271	281	0.5	0.8	10.224	B

17:30 - 17:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Salmons Lane West	409	102	378	764	0.536	407	352	0.7	1.1	10.057	B
2 - Buxton Lane (s)	352	88	377	797	0.442	351	409	0.5	0.8	8.050	A
3 - Ninehams Road	338	85	410	462	0.733	333	317	1.2	2.5	26.967	D
4 - Buxton Lane (n)	333	83	400	578	0.575	330	343	0.8	1.3	14.389	B

17:45 - 18:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Salmons Lane West	409	102	381	762	0.537	409	355	1.1	1.1	10.207	B
2 - Buxton Lane (s)	352	88	378	796	0.442	352	412	0.8	0.8	8.105	A
3 - Ninehams Road	338	85	411	461	0.734	338	319	2.5	2.6	28.933	D
4 - Buxton Lane (n)	333	83	404	576	0.578	332	345	1.3	1.3	14.775	B

18:00 - 18:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Salmons Lane West	334	84	315	805	0.415	336	294	1.1	0.7	7.702	A
2 - Buxton Lane (s)	287	72	311	839	0.343	288	340	0.8	0.5	6.557	A
3 - Ninehams Road	276	69	337	500	0.552	282	262	2.6	1.3	16.840	C
4 - Buxton Lane (n)	272	68	335	618	0.440	274	284	1.3	0.8	10.527	B

18:15 - 18:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Salmons Lane West	280	70	262	839	0.333	281	244	0.7	0.5	6.455	A
2 - Buxton Lane (s)	241	60	260	871	0.276	241	284	0.5	0.4	5.722	A
3 - Ninehams Road	231	58	282	529	0.437	233	219	1.3	0.8	12.236	B
4 - Buxton Lane (n)	227	57	278	652	0.349	228	237	0.8	0.5	8.515	A

2028 + Development, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Demand Set Relationship	D7 - 2028 + Development, AM	Demand Set relationships are chained. This may slow down the file.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout		1, 2, 3, 4	35.65	E

Junction Network Options

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically	Relationship type	Relationship
D7	2028 + Development	AM	ONE HOUR	08:00	09:30	15	✓	Simple	D3+D5

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - Salmons Lane West		ONE HOUR	✓	391	100.000
2 - Buxton Lane (s)		ONE HOUR	✓	359	100.000
3 - Ninehams Road		ONE HOUR	✓	394	100.000
4 - Buxton Lane (n)		ONE HOUR	✓	353	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - Salmons Lane West	2 - Buxton Lane (s)	3 - Ninehams Road	4 - Buxton Lane (n)
From	1 - Salmons Lane West	0	147	190	54
	2 - Buxton Lane (s)	153	0	47	159
	3 - Ninehams Road	200	119	0	74
	4 - Buxton Lane (n)	55	251	47	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - Salmons Lane West	2 - Buxton Lane (s)	3 - Ninehams Road	4 - Buxton Lane (n)
From	1 - Salmons Lane West	0	2	1	2
	2 - Buxton Lane (s)	4	0	0	1
	3 - Ninehams Road	1	0	0	3
	4 - Buxton Lane (n)	2	0	4	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - Salmons Lane West	0.61	13.02	1.5	B	359	539
2 - Buxton Lane (s)	0.49	8.61	0.9	A	330	494
3 - Ninehams Road	0.95	88.00	10.0	F	361	542
4 - Buxton Lane (n)	0.77	30.18	3.1	D	324	486

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Salmons Lane West	295	74	310	800	0.368	292	304	0.0	0.6	7.059	A
2 - Buxton Lane (s)	270	68	217	878	0.308	269	386	0.0	0.4	5.895	A
3 - Ninehams Road	296	74	274	525	0.565	291	212	0.0	1.2	15.132	C
4 - Buxton Lane (n)	266	66	352	606	0.439	263	214	0.0	0.8	10.410	B

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Salmons Lane West	352	88	372	760	0.463	351	365	0.6	0.8	8.766	A
2 - Buxton Lane (s)	323	81	260	851	0.380	322	463	0.4	0.6	6.805	A
3 - Ninehams Road	354	88	329	495	0.714	350	254	1.2	2.3	24.012	C
4 - Buxton Lane (n)	317	79	422	562	0.565	316	256	0.8	1.3	14.482	B

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Salmons Lane West	431	108	448	712	0.605	428	437	0.8	1.5	12.574	B
2 - Buxton Lane (s)	395	99	318	815	0.485	394	558	0.6	0.9	8.533	A
3 - Ninehams Road	433	108	402	456	0.950	411	310	2.3	7.8	61.449	F
4 - Buxton Lane (n)	389	97	503	512	0.760	383	311	1.3	2.8	26.611	D

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Salmons Lane West	431	108	456	707	0.610	431	446	1.5	1.5	13.025	B
2 - Buxton Lane (s)	395	99	320	813	0.486	395	567	0.9	0.9	8.611	A
3 - Ninehams Road	433	108	403	455	0.952	425	312	7.8	10.0	88.005	F
4 - Buxton Lane (n)	389	97	514	505	0.770	388	314	2.8	3.1	30.183	D

09:00 - 09:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Salmons Lane West	352	88	390	749	0.470	354	384	1.5	0.9	9.173	A
2 - Buxton Lane (s)	323	81	264	848	0.381	324	480	0.9	0.6	6.882	A
3 - Ninehams Road	354	88	331	494	0.716	383	257	10.0	2.8	38.182	E
4 - Buxton Lane (n)	317	79	449	545	0.582	324	264	3.1	1.5	16.733	C

09:15 - 09:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Salmons Lane West	295	74	318	795	0.371	296	311	0.9	0.6	7.229	A
2 - Buxton Lane (s)	270	68	220	876	0.309	271	394	0.6	0.5	5.961	A
3 - Ninehams Road	296	74	277	523	0.566	302	214	2.8	1.4	16.668	C
4 - Buxton Lane (n)	266	66	361	600	0.443	268	217	1.5	0.8	10.947	B

2028 + Development, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Demand Set Relationship	D7 - 2028 + Development, AM	Demand Set relationships are chained. This may slow down the file.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout		1, 2, 3, 4	16.27	C

Junction Network Options

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically	Relationship type	Relationship
D8	2028 + Development	PM	ONE HOUR	17:00	18:30	15	✓	Simple	D4+D6

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - Salmons Lane West		ONE HOUR	✓	382	100.000
2 - Buxton Lane (s)		ONE HOUR	✓	338	100.000
3 - Ninehams Road		ONE HOUR	✓	310	100.000
4 - Buxton Lane (n)		ONE HOUR	✓	302	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - Salmons Lane West	2 - Buxton Lane (s)	3 - Ninehams Road	4 - Buxton Lane (n)
From	1 - Salmons Lane West	0	100	207	75
	2 - Buxton Lane (s)	131	0	21	186
	3 - Ninehams Road	176	81	0	53
	4 - Buxton Lane (n)	36	202	63	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - Salmons Lane West	2 - Buxton Lane (s)	3 - Ninehams Road	4 - Buxton Lane (n)
From	1 - Salmons Lane West	0	1	0	0
	2 - Buxton Lane (s)	0	0	0	0
	3 - Ninehams Road	0	0	0	0
	4 - Buxton Lane (n)	0	1	2	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - Salmons Lane West	0.55	10.53	1.2	B	350	525
2 - Buxton Lane (s)	0.47	8.50	0.9	A	310	465
3 - Ninehams Road	0.76	32.38	2.9	D	285	427
4 - Buxton Lane (n)	0.59	15.68	1.4	C	277	416

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Salmons Lane West	287	72	258	842	0.341	285	256	0.0	0.5	6.445	A
2 - Buxton Lane (s)	254	64	257	872	0.292	253	286	0.0	0.4	5.795	A
3 - Ninehams Road	234	58	293	524	0.446	230	217	0.0	0.8	12.156	B
4 - Buxton Lane (n)	227	57	289	646	0.352	225	234	0.0	0.5	8.519	A

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Salmons Lane West	343	86	310	808	0.425	342	308	0.5	0.7	7.714	A
2 - Buxton Lane (s)	304	76	309	840	0.362	303	344	0.4	0.6	6.701	A
3 - Ninehams Road	279	70	351	493	0.566	277	261	0.8	1.3	16.543	C
4 - Buxton Lane (n)	272	68	347	610	0.445	271	281	0.5	0.8	10.564	B

17:30 - 17:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Salmons Lane West	420	105	378	764	0.550	418	374	0.7	1.2	10.361	B
2 - Buxton Lane (s)	372	93	378	796	0.467	371	419	0.6	0.9	8.429	A
3 - Ninehams Road	342	85	430	451	0.757	336	318	1.3	2.8	29.674	D
4 - Buxton Lane (n)	333	83	422	565	0.589	330	343	0.8	1.4	15.193	C

17:45 - 18:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Salmons Lane West	420	105	381	762	0.552	420	378	1.2	1.2	10.531	B
2 - Buxton Lane (s)	372	93	379	795	0.468	372	422	0.9	0.9	8.498	A
3 - Ninehams Road	342	85	431	450	0.758	341	320	2.8	2.9	32.379	D
4 - Buxton Lane (n)	333	83	427	562	0.592	332	345	1.4	1.4	15.676	C

18:00 - 18:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Salmons Lane West	343	86	315	805	0.426	345	313	1.2	0.8	7.860	A
2 - Buxton Lane (s)	304	76	312	838	0.362	305	349	0.9	0.6	6.765	A
3 - Ninehams Road	279	70	354	491	0.567	285	263	2.9	1.4	17.934	C
4 - Buxton Lane (n)	272	68	355	606	0.448	274	284	1.4	0.8	10.923	B

18:15 - 18:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Salmons Lane West	287	72	263	839	0.342	288	260	0.8	0.5	6.548	A
2 - Buxton Lane (s)	254	64	260	870	0.292	255	290	0.6	0.4	5.856	A
3 - Ninehams Road	234	58	296	522	0.447	236	220	1.4	0.8	12.663	B
4 - Buxton Lane (n)	227	57	294	643	0.354	229	237	0.8	0.6	8.719	A

Appendix C

8 Kilometre Cycle Isochrone

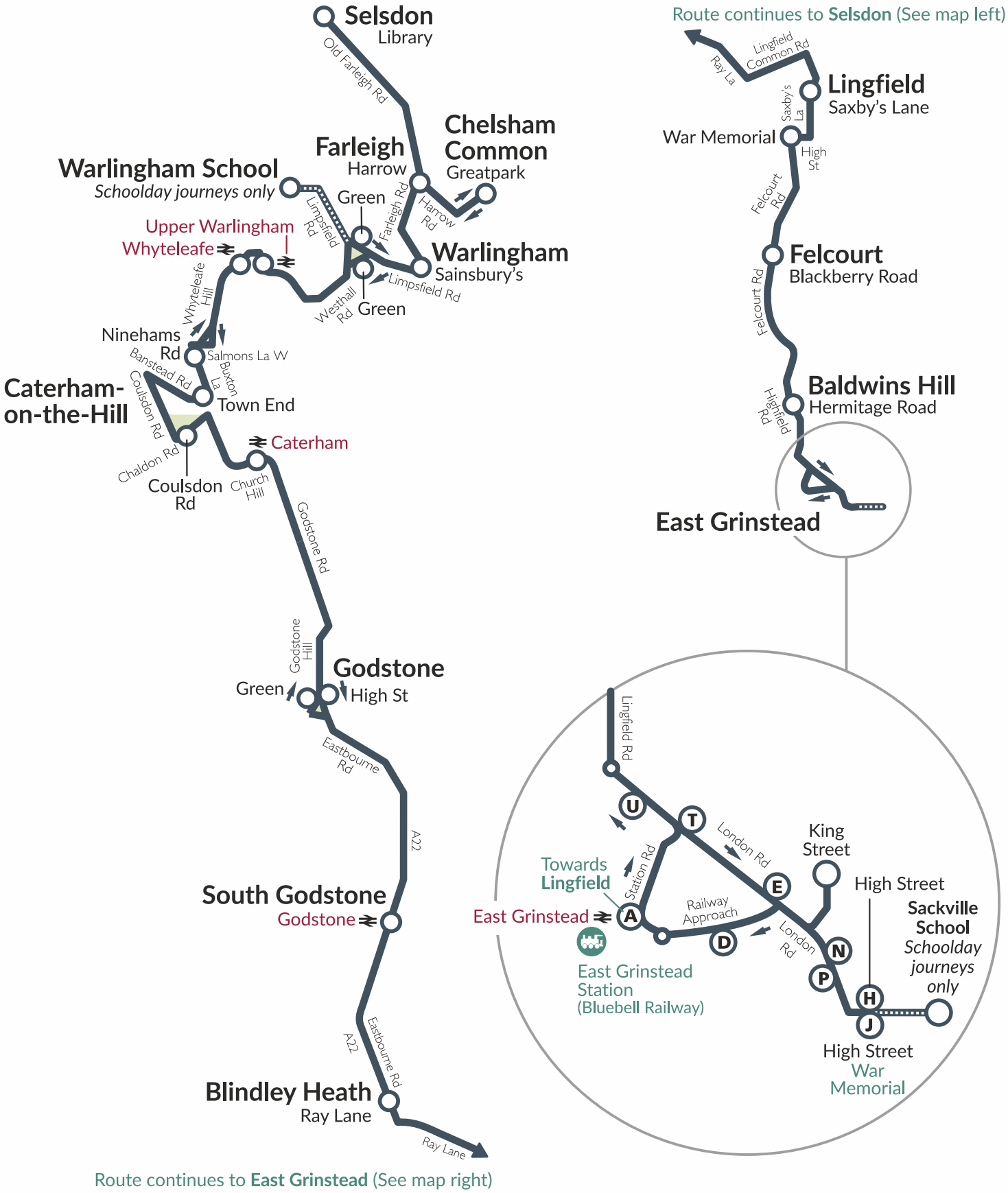
Appendix D

Bus Timetables/Frequency

METROBUS

Daily **409**

East Grinstead - Lingfield - Godstone - Caterham - Warlingham - Selsdon



This map is not to scale.

A detailed interactive map showing all stops is available at **metrobus.co.uk**

409

East Grinstead - Caterham - Warlingham - Selsdon

Daily from 28th September 2024
Includes journeys on
Service **411** **Mon-Fri only**

East Grinstead
Lingfield
Godstone
Caterham Station
Caterham-on-the-Hill
Warlingham
Chelsham Common
Farleigh
Selsdon

Mondays to Fridays

Code				SDO	NSD	SDO	NSD									
Service	409	409	409	409	409	409	409	409	411	409	409	409	411	409	409	409
East Grinstead High Street, Stop J	....	....	....	0654	0704	....	....	0839	....	0939	....	1039	....	1139	....	1239
East Grinstead Station	....	....	....	0657	0707	....	....	0843	....	0943	....	1043	....	1143	....	1243
Baldwins Hill Hermitage Road	....	....	....	0700	0710	....	....	0847	....	0947	....	1047	....	1147	....	1247
Felcourt Blackberry Road	....	....	....	0703	0713	....	....	0850	....	0950	....	1050	....	1150	....	1250
Lingfield War Memorial	0541	0623	....	0706	0717	....	0754	0854	....	0954	....	1054	....	1154	....	1254
Lingfield Saxby's Lane	0544	0626	....	0709	0720	....	0757	0857	....	0957	....	1057	....	1157	....	1257
Blindley Heath Ray Lane	0549	0631	....	0715	0726	....	0803	0903	....	1003	....	1103	....	1203	....	1303
South Godstone Godstone Station	0553	0635	....	0719	0730	....	0808	0908	....	1008	....	1108	....	1208	....	1308
Godstone Green	0559	0641	....	0725	0737	....	0815	0915	....	1015	....	1115	....	1215	....	1315
Caterham Station (arr)	0606	0648	....	0737	0746	....	0824	0924	R	1024	....	1124	R	1224	....	1324
Caterham Station (dep)	0607	0649	0716	0739	0748	....	0827	0927	0957	1027	1057	1127	1157	1227	1257	1327
Caterham Coulsdon Road	0611	0653	0720	0746	0753	....	0832	0932	1002	1032	1102	1132	1202	1232	1302	1332
Banstead Road Town End	0616	0659	0726	0754	0759	....	0839	0939	1012	1039	1109	1139	1212	1239	1309	1339
Buxton Lane Ninehams Road	0618	0701	0728	0758	0801	....	0841	0941	1014	1041	1111	1141	1214	1241	1311	1341
Whyteleafe Station	0622	0705	0732	0805	0807	....	0845	0945	1018	1045	1115	1145	1218	1245	1315	1345
Upper Warlingham Station	0624	0707	....	0807	0809	....	0847	0947	1020	1047	1117	1147	1220	1247	1317	1347
Warlingham School	↓	↓	....	0819	↓	....	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
Warlingham Green	0628	0711	....	0826	0814	0852	0852	0952	1025	1052	1122	1152	1225	1252	1322	1352
Warlingham Sainsbury's	0630	0713	....	0828	0816	0854	0854	0954	1027	1054	1124	1154	1227	1254	1324	1354
Farleigh Harrow	0634	0717	....	0833	0820	0858	0858	0958	....	1058	....	1158	....	1258	....	1358
Chelsham Common Great Park	0637	0720	....	0836	0823	0901	0901	1001	....	1101	....	1201	....	1301	....	1401
Farleigh Harrow	0640	0723	....	....	....	0904	0904	1004	....	1104	....	1204	....	1304	....	1404
Selsdon Library	0645	0729	....	....	....	0909	0909	1009	....	1109	....	1209	....	1309	....	1409

Mondays to Fridays cont...

Code		Non-schooldays only					Schooldays only					SDO				
Service	411	409	409	409	411	409	409	409	411	409	409	411	409	411	409	409	409
Sackville School A22	....	....	....	....	....	....	....	....	....	1527	....	....	....	....	....	....	....
East Grinstead High St	....	1339	....	1435	....	1533	1400	1430	....	1530	....	....	1632	....	1739	1839	....
East Grinstead Station	....	1343	....	1439	....	1538	1404	1434	....	1535	....	....	1637	....	1744	1843	....
Baldwins Hill Hermitage Road	....	1347	....	1443	....	1542	1408	1438	....	1540	....	....	1641	....	1748	1846	....
Felcourt Blackberry Road	....	1350	....	1446	....	1545	1411	1441	....	1543	....	....	1644	....	1751	1849	....
Lingfield War Memorial	....	1354	....	1450	....	1549	1415	1445	....	1547	....	....	1648	....	1755	1852	....
Lingfield Saxby's Lane	....	1357	....	1453	....	1552	1418	1448	....	1550	....	....	1652	....	1758	1855	....
Blindley Heath Ray Lane	....	1403	....	1459	....	1558	1424	1454	....	1556	....	....	1658	....	1804	1900A	....
S. Godstone Godstone Stn	....	1408	....	1504	....	1603	1429	1458	....	1601	....	....	1703	....	1808	....	....
Godstone Green	....	1415	....	1511	....	1610	1436	1504	....	1608	....	....	1711	....	1815	....	....
Caterham Station (arr)	R	1424	....	1520	R	1619	1445	....	R	1619	....	R	1722	R	1824	....	....
Caterham Station (dep)	1357	1427	1457	1523	1557	1623	1448	....	1603	1623	1701	1715	1728	1800	1828	....	1910
Caterham Coulsdon Road	1402	1432	1502	1528	1602	1628	1454	....	1608	1628	1706	1720	1733	1805	1833	....	1914
Banstead Road Town End	1412	1439	1509	1535	1612	1635	1501	....	1618	1635	1714	1731	1741	1815	1840	....	1921
Buxton Lane Ninehams Road	1414	1441	1511	1537	1614	1637	1503	....	1620	1637	1716	1733	1743	1817	1842	....	1923
Whyteleafe Station	1418	1445	1515	1541	1618	1641	1507	....	1624	1641	1720	1737	1747	1821	1846	....	1927
Upper Warlingham Station	1420	1447	1517	1543	1620	1643	1509	....	1626	1643	1722	1739	1749	1823	1848	....	1929
Warlingham School	↓	↓	↓	↓	↓	↓	1520	....	↓	↓	↓	↓	↓	↓	↓	....	↓
Warlingham Green	1425	1452	1522	1548	1625	1648	1528	....	1631	1648	1727	1744	1754	1828	1853	....	1933
Warlingham Sainsbury's	1427	1454	1524	1550	1627	1650	1530	....	1633	1650	1729	1746	1756	1830	1855	....	1935
Farleigh Harrow	....	1458	....	1554	....	1654	1534	....	1637	1654	....	....	1800	....	1859	....	1938
Chelsham Common Great Pk	....	1501	....	1557	....	1657	1537	....	1640	1657	....	....	1803	....	1902	....	1940
Farleigh Harrow	....	1504	....	1600	....	1700	1540	....	1643	1700	....	....	1806	....	....	....	....
Selsdon Library	....	1509	....	1606	....	1706	1546	....	1649	1706	....	....	1811	....	....	....	....

CODE: **SDO** Schooldays only. **NSD** Non-schooldays. A Time at Blindley Heath, Albion House.
R Journey operates from Reigate - see separate 411 timetable.

Services **409** and **411** are supported by SURREY COUNTY COUNCIL

East Grinstead - Caterham - Warlingham - Selsdon

409

East Grinstead · Lingfield · Godstone · Caterham Station · Caterham-on-the-Hill · Warlingham · Chelsham Common · Farleigh · Selsdon

Daily
from 28th September 2024

Saturdays

East Grinstead High Street, Stop J	....	....	0839	....	1039	....	1238	....	1438	....	1630	1730
East Grinstead Station	....	....	0843	....	1043	....	1243	....	1443	....	1634	1734
Baldwins Hill Hermitage Road	....	....	0847	....	1047	....	1247	....	1447	....	1638	1737
Felcourt Blackberry Road	....	....	0850	....	1050	....	1250	....	1450	....	1641	1740
Lingfield War Memorial	0704	0759	0854	....	1054	....	1254	....	1454	....	1645	1744
Lingfield Saxby's Lane	0707	0802	0857	....	1057	....	1257	....	1457	....	1648	1747
Blindley Heath Ray Lane	0712	0807	0903	....	1103	....	1303	....	1503	....	1654	1752A
South Godstone Godstone Station	0717	0812	0908	....	1108	....	1308	....	1508	....	1659	....
Godstone Green	0723	0818	0915	1015	1115	1215	1315	1415	1515	1615	1705	....
Caterham Station (arr)	0729	0824	0924	1024	1124	1224	1324	1424	1524	1624	1713	....
Caterham Station (dep)	0732	0827	0927	1027	1127	1227	1327	1427	1527	1627	1716	....
Caterham Coulsdon Road	0736	0832	0932	1032	1132	1232	1332	1432	1532	1632	1721	....
Banstead Road Town End	0742	0839	0939	1039	1139	1239	1339	1439	1539	1639	1728	....
Buxton Lane Ninehams Road	0744	0841	0941	1041	1141	1241	1341	1441	1541	1641	1730	....
Whyteleafe Station	0748	0845	0945	1045	1145	1245	1345	1445	1545	1645	1733	....
Upper Warlingham Station	0750	0847	0947	1047	1147	1247	1347	1447	1547	1647	1735	....
Warlingham Green	0755	0852	0952	1052	1152	1252	1352	1452	1552	1652	1739	....
Warlingham Sainsbury's	0757	0854	0954	1054	1154	1254	1354	1454	1554	1654	1741	....
Farleigh Harrow	0801	0858	0958	1058	1158	1258	1358	1458	1558	1658	1745	....
Chelsham Common Great Park	0804	0901	1001	1101	1201	1301	1401	1501	1601	1701	1748	....
Farleigh Harrow	....	0904	1004	1104	1204	1304	1404	1504	1604	1704	....	....
Selsdon Library	....	0909	1009	1109	1209	1309	1409	1509	1609	1709	....	....

Sundays and Public Holidays

Lingfield War Memorial	0945	....	....	....	1345	....	....	....
Lingfield Saxby's Lane	0948	....	....	....	1348	....	....	....
Blindley Heath Ray Lane	0953	....	....	....	1353	....	....	....
South Godstone Godstone Station	0957	....	....	....	1357	....	....	....
Godstone Green	1004	....	....	....	1404	....	....	....
Caterham Station	1012	1112	1212	1312	1412	1512	1612	1712
Caterham Coulsdon Road	1016	1116	1216	1316	1416	1516	1616	1716
Banstead Road Town End	1022	1122	1222	1322	1422	1522	1622	1722
Buxton Lane Ninehams Road	1024	1124	1224	1324	1424	1524	1624	1724
Whyteleafe Station	1028	1128	1228	1328	1428	1528	1628	1728
Upper Warlingham Station	1030	1130	1230	1330	1430	1530	1630	1730
Warlingham Green	1034	1135	1235	1335	1435	1535	1635	1734
Warlingham Sainsbury's	1036	1137	1237	1337	1437	1537	1637	1736

CODE: A Time at Blindley Heath, Albion House.

Service **409** is supported by SURREY COUNTY COUNCIL

409 Selsdon - Warlingham - Caterham - East Grinstead

Daily from 28th September 2024
Includes journeys on
Service **411** **Mon-Fri only**

Selsdon · Farleigh · Chelsham Common · Warlingham · Caterham-on-the-Hill · Caterham Station · Godstone · Lingfield · **East Grinstead**

Mondays to Fridays

Code			SDO	NSD	NSD	SDO	NSD	SDO								
Service	409	409	411	411	409	409	409	411	409	411	409	409	409	411	409	409
Selsdon Library	....	....	0650	0700	....	0738	0751	....	....	....	0944	....	1044	....	1144	....
Farleigh Harrow	....	....	0656	0706	....	0746	0757	....	....	....	0950	....	1050	....	1150	....
Chelsham Common Great Park	....	0642	0659	0709	....	0750	0800	....	0853	....	0953	....	1053	....	1153	....
Farleigh Harrow	....	0645	0702	0712	....	0754	0803	....	0856	....	0956	....	1056	....	1156	....
Warlingham Sainsbury's	....	0648	0706	0716	....	0758	0807	0845	0900	0930	1000	1030	1100	1130	1200	1230
Warlingham Green	....	0650	0709	0719	....	0801	0810	0848	0903	0933	1003	1033	1103	1133	1203	1233
Warlingham School	....	↓	↓	↓	....	0807	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
Upper Warlingham Station	....	0653	0713	0723	....	↓	0814	0851	0906	0936	1006	1036	1106	1136	1206	1236
Whyteleafe Station	0642	0655	0715	0725	....	0812	0816	0853	0908	0938	1008	1038	1108	1138	1208	1238
Buxton Lane Ninehams Road	0646	0659	0719	0729	....	0817	0821	0858	0912	0942	1012	1042	1112	1142	1212	1242
Banstead Road Town End	0648	0701	0721	0731	....	0819	0823	0900	0914	0944	1014	1044	1114	1144	1214	1244
Caterham Coulsdon Road	0654	0708	0734	0742	....	0827	0830	0910	0921	0954	1021	1051	1121	1154	1221	1251
Caterham Station	0658	0712	0740	0746	....	0834	0836	0916	0927	1000	1027	1056	1127	1200	1227	1256
Godstone High Street (arr)	0708	....	R	R	....	0844	0845	R	0936	R	1036	....	1136	R	1236	....
Godstone High Street (dep)	0708	....	....	....	....	0847	0848	....	0940	....	1040	....	1140	....	1240	....
South Godstone Godstone Station	0714	....	....	....	....	0854	0854	....	0946	....	1046	....	1146	....	1246	....
Blindley Heath Ray Lane	0718	....	....	....	0759A	0858	0858	....	0950	....	1050	....	1150	....	1250	....
Lingfield Saxby's Lane	0724	....	....	....	0804	0904	0904	....	0956	....	1056	....	1156	....	1256	....
Lingfield War Memorial	0728	....	....	....	0808	0908	0908	....	1000	....	1100	....	1200	....	1300	....
Felcourt Blackberry Road	0731	....	....	....	0811	0911	0911	....	1003	....	1103	....	1203	....	1303	....
Baldwins Hill Hermitage Road	0734	....	....	....	0814	0914	0914	....	1006	....	1106	....	1206	....	1306	....
East Grinstead King Street	↓	....	....	....	0820	0920	0920	....	1012	....	↓	....	↓	....	↓	....
East Grinstead High Street	0740c	....	....	....	....	....	....	....	....	....	1114	....	1214	....	1314	....

Mondays to Fridays cont...

Code					NSD	SDO	NSD	SDO							
Service	409	411	409	409	409	409	411	411	409	409	409	411	409	409	409
Selsdon Library	1244	....	1344	....	1448	1448	....	....	1558	....	1658	....	1753	....	1853
Farleigh Harrow	1250	....	1350	....	1454	1454	....	....	1604	....	1704	....	1759	....	1859
Chelsham Common Great Park	1253	....	1353	....	1457	1457	....	....	1607	....	1707	....	1802	....	1902
Farleigh Harrow	1256	....	1356	....	1500	1500	....	....	1610	....	1710	....	1805	....	1905
Warlingham Sainsbury's	1300	1330	1400	1430	1504	1505	1530	....	1615	1630	1714	1739	1809	1840	1909
Warlingham Green	1303	1333	1403	1433	1507	1508	1533	....	1618	1633	1717	1742	1812	1842	1911
Warlingham School	↓	↓	↓	↓	↓	1520	↓	....	↓	↓	↓	↓	↓	↓	↓
Upper Warlingham Station	1306	1336	1406	1436	1511	↓	1536	....	1622	1637	1721	1746	1816	1846	1915
Whyteleafe Station	1308	1338	1408	1438	1513	1526	1538	1548	1625	1639	1723	1748	1818	1848	1917
Buxton Lane Ninehams Road	1312	1342	1412	1442	1517	1531	1542	1552	1629	1643	1727	1752	1822	1852	1921
Banstead Road Town End	1314	1344	1414	1444	1519	1535	1544	1554	1631	1645	1729	1754	1824	1854	1923
Caterham Coulsdon Road	1321	1354	1421	1451	1526	1543	1554	1604	1639	1653	1736	1803	1831	1901	1930
Caterham Station	1327	1400	1427	1456	1532	1550	1600	1610	1646	1659	1742	1809	1836	1906	1935
Godstone High Street (arr)	1336	R	1436	....	1541	1559	R	R	1656	....	1752	T	1846	....	1944
Godstone High Street (dep)	1340	....	1440	....	1545	1603	....	....	1700	....	1756	....	1849	....	1947
South Godstone Godstone Station	1346	....	1446	....	1551	1610	....	....	1706	....	1802	....	1855	....	1953
Blindley Heath Ray Lane	1350	....	1450	....	1555	1614	....	....	1710	....	1806	....	1859	....	1957
Lingfield Saxby's Lane	1356	....	1456	....	1601	1620	....	....	1716	....	1812	....	1905	....	2003
Lingfield War Memorial	1400	....	1500	....	1605	1624	....	....	1720	....	1816	....	1909	....	2007
Felcourt Blackberry Road	1403	....	1503	....	1608	1627	....	....	1723	....	1819	....	1912	....	....
Baldwins Hill Hermitage Road	1406	....	1506	....	1611	1630	....	....	1726	....	1822	....	1915	....	....
East Grinstead King Street	1412	....	1512	....	1617	1636	....	....	↓	....	1828	....	↓	....	....
East Grinstead High Street	....	....	....	....	....	....	....	....	1734	....	....	....	1922	....	....

CODE: **SDO** Schooldays only. **NSD** Non-schooldays

c Continues to Sackville School as route **609** on schooldays only.

A Time at Blindley Heath, Albion House.

R Journey continues to Reigate - see separate 411 timetable.

T Journey continues to Redhill - see separate 411 timetable.

Services **409** and **411** are supported by SURREY COUNTY COUNCIL

Selsdon - Warlingham - Caterham - East Grinstead

409

Selsdon · Farleigh · Chelsham Common · Warlingham · Caterham-on-the-Hill · Caterham Station · Godstone · Lingfield · East Grinstead

Daily
from 28th September 2024

Saturdays

Selsdon Library	....	....	....	0944	1044	1144	1244	1344	1444	1544	1644	1744
Farleigh Harrow	....	....	....	0950	1050	1150	1250	1350	1450	1550	1650	1750
Chelsham Common Great Park	....	0812	0912	0953	1053	1153	1253	1353	1453	1553	1653	1753
Farleigh Harrow	....	0815	0915	0956	1056	1156	1256	1356	1456	1556	1656	1756
Warlingham Sainsbury's	....	0819	0919	1000	1100	1200	1300	1400	1500	1600	1700	1800
Warlingham Green	....	0821	0922	1003	1103	1203	1303	1403	1503	1603	1703	1803
Upper Warlingham Station	....	0824	0925	1006	1106	1206	1306	1406	1506	1606	1706	1806
Whyteleafe Station	....	0826	0927	1008	1108	1208	1308	1408	1508	1608	1708	1808
Buxton Lane Ninehams Road	....	0830	0931	1012	1112	1212	1312	1412	1512	1612	1712	1812
Banstead Road Town End	....	0832	0933	1014	1114	1214	1314	1414	1514	1614	1714	1814
Caterham Coulsdon Road	....	0838	0940	1021	1121	1221	1321	1421	1521	1620	1720	1820
Caterham Station	....	0842	0945	1027	1127	1227	1327	1427	1527	1625	1725	1825
Godstone High Street (arr)	....	0850	0953	1036	1136	1236	1336	1436	1536	1634	1734	1834
Godstone High Street (dep)	....	0850	....	1040	....	1240	....	1440	....	1636	1736	1836
South Godstone Godstone Station	....	0856	....	1046	....	1246	....	1446	....	1642	1742	1842
Blindley Heath Ray Lane	0801A	0900	....	1050	....	1250	....	1450	....	1646	1746	1846
Lingfield Saxby's Lane	0805	0905	....	1056	....	1256	....	1456	....	1651	1752	1852
Lingfield War Memorial	0808	0908	....	1100	....	1300	....	1500	....	1655	1755	1855
Felcourt Blackberry Road	0811	0911	....	1103	....	1303	....	1503	....	1658	....	1858
Baldwins Hill Hermitage Road	0814	0914	....	1106	....	1306	....	1506	....	1701	....	1901
East Grinstead King Street	0820	0920	....	1112	....	1312	....	1512	....	1707	....	1907

Sundays and Public Holidays

Warlingham Sainsbury's	1045	1145	1245	1345	1445	1545	1645	1745
Warlingham Green	1047	1147	1247	1347	1447	1547	1647	1747
Upper Warlingham Station	1050	1150	1250	1350	1450	1550	1650	1750
Whyteleafe Station	1052	1152	1252	1352	1452	1552	1652	1752
Buxton Lane Ninehams Road	1056	1156	1256	1356	1456	1556	1656	1756
Banstead Road Town End	1058	1158	1258	1358	1458	1558	1658	1758
Caterham Coulsdon Road	1103	1203	1303	1403	1503	1603	1703	1803
Caterham Station	1108	1208	1308	1408	1508	1608	1708	1808
Godstone High Street	....	....	....	1415	....	....	....	1815
South Godstone Godstone Station	....	....	....	1421	....	....	....	1821
Blindley Heath Ray Lane	....	....	....	1425	....	....	....	1825
Lingfield Saxby's Lane	....	....	....	1430	....	....	....	1830
Lingfield War Memorial	....	....	....	1433	....	....	....	1833

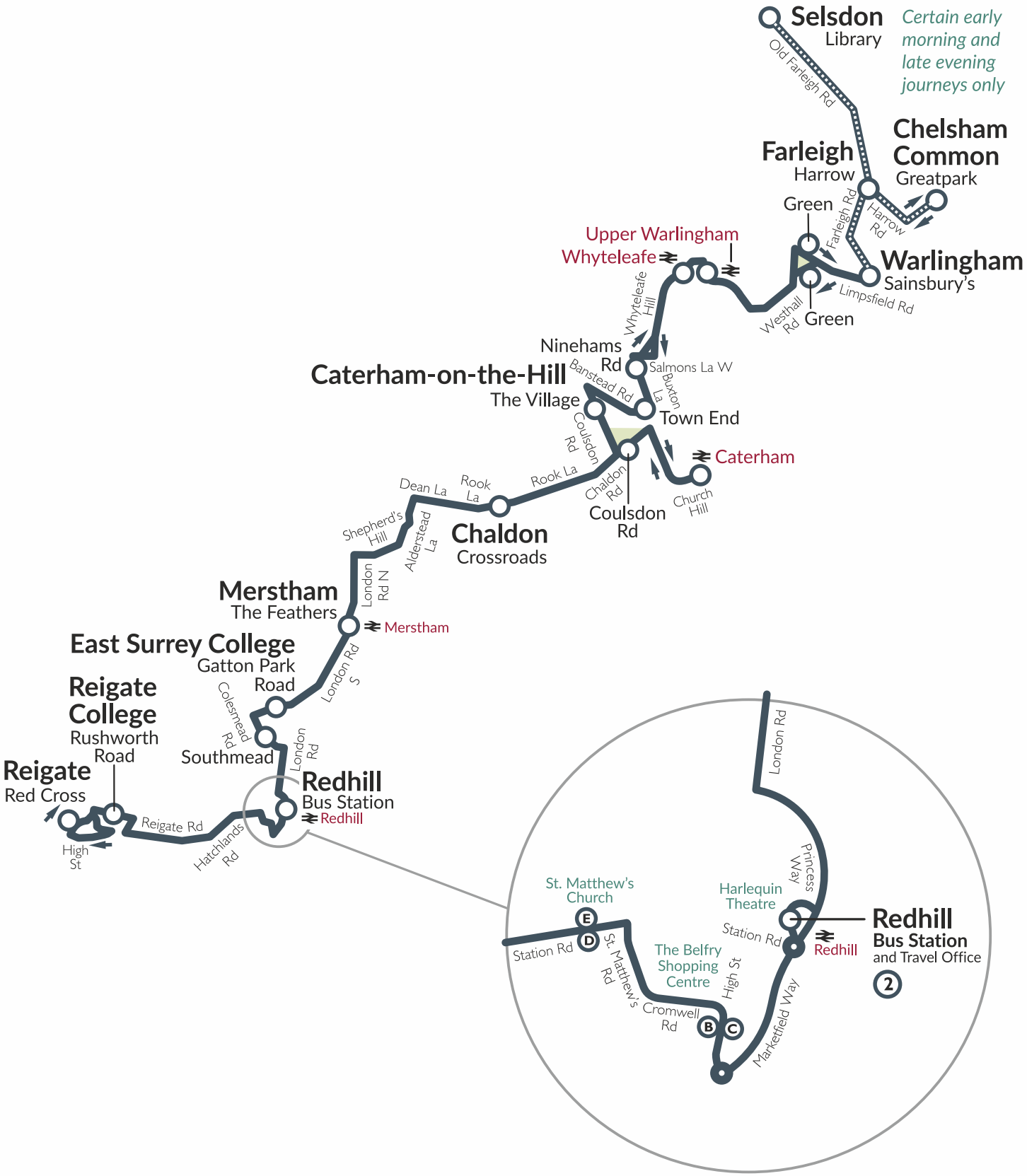
CODE: A Time at Blindley Heath, Albion House.

Service **409** is supported by SURREY COUNTY COUNCIL

METROBUS

Mon-Fri 411

Reigate - Redhill - Caterham - Warlingham



This map is not to scale.

A detailed interactive map showing all stops is available at **metrobus.co.uk**

411

Warlingham - Caterham - Redhill - Reigate

Mondays to Fridays only
from 28th September 2024

Mondays to Fridays only

Code	SDO	NSD	SDO				NSD	SDO	
Selsdon Library	0650	0700	....	....	....	....	....	....	....
Farleigh Harrow	0656	0706	....	....	....	....	....	....	....
Chelsham Common Great Park	0659	0709	....	....	....	....	....	....	....
Farleigh Harrow	0702	0712	....	....	....	....	....	....	....
Warlingham Sainsbury's	0706	0716	0845	0930	1130	1330	1530	....	1739
Warlingham Green	0709	0719	0848	0933	1133	1333	1533	....	1742
Upper Warlingham Station	0713	0723	0851	0936	1136	1336	1536	....	1746
Whyteleafe Station	0715	0725	0853	0938	1138	1338	1538	1548	1748
Buxton Lane Ninehams Road	0719	0729	0858	0942	1142	1342	1542	1552	1752
Banstead Road Town End	0721	0731	0900	0944	1144	1344	1544	1554	1754
The Village Brigade Place	0727	0737	0905	0949	1149	1349	1549	1559	1758
Caterham Coulsdon Road	0734	0742	0910	0954	1154	1354	1554	1604	1803
Caterham Station (arr)	0740	0746	0916	1000	1200	1400	1600	1610	1809
Caterham Station (dep)	0743	0748	0918	1002	1202	1402	1602	1612	1811
Caterham Coulsdon Road	0750	0753	0923	1007	1207	1407	1607	1617	1816
Chaldon Crossroads	0754	0757	0927	1011	1211	1411	1610	1620	1819
Merstham The Feathers	0808	0804	0933	1017	1217	1417	1617	1627	1825
East Surrey College Gatton Point	0815L	0807	0936	1020	1220	1420	1620	1631	1829
Redhill South Mead	↓	0810	0938	1022	1222	1422	1622	1633	1831
Redhill Bus Station (arr)	0824	0814	0942	1026	1226	1426	1626	1638	1835
Redhill Bus Station (dep)	0826	0816	0944	1028	1228	1428	1628	1641	....
Reigate College	0838	0824	0953	1037	1237	1437	1637	1650	....
Reigate Red Cross	0841	0827	0956	1040	1240	1440	1639	1652	....

CODE: **SDO** Schooldays only. **NSD** Non-schooldays. Rail Station nearby.

L Time at East Surrey College, London Road.

No service on Saturdays, Sundays or Public Holidays

Service **411** is supported by SURREY COUNTY COUNCIL

Reigate - Redhill - Caterham - Warlingham

411

Reigate · Redhill · East Surrey College · Merstham · Chaldon · Caterham · Caterham-on-the-Hill · Whyteleafe · Upper Warlingham · Warlingham · Selsdon

Mondays to Fridays only
from 28th September 2024

Mondays to Fridays only

Code				NSD	SDO	SDO	
Reigate Red Cross	0915	1115	1315	1510	1510	1622	1712
Reigate College (arr)	0917	1117	1317	1512	1512	1625	1714
Reigate College (dep)	0917	1117	1317	1515	1515	1628	1714
Redhill Bus Station (arr)	0927	1127	1327	1526	1526	1640	1728
Redhill Bus Station (dep)	0929	1129	1329	1528	1529	1642	1730
Redhill South Mead	0932	1132	1332	1532	1534	1646	1734
East Surrey College Gatton Point	0935	1135	1335	1535	1537	1650	1737
Merstham The Feathers	0939	1139	1339	1539	1542	1655	1741
Chaldon Crossroads	0945	1145	1345	1545	1549	1701	1748
Caterham Coulsdon Road	0949	1149	1349	1549	1553	1705	1752
Caterham Station (arr)	0955	1155	1355	1555	1600	1712	1758
Caterham Station (dep)	0957	1157	1357	1557	1603	1715	1800
Caterham Coulsdon Road	1002	1202	1402	1602	1608	1720	1805
The Village Brigade Place	1006	1206	1406	1606	1612	1725	1809
Banstead Road Town End	1012	1212	1412	1612	1618	1731	1815
Buxton Lane Ninehams Road	1014	1214	1414	1614	1620	1733	1817
Whyteleafe Station	1018	1218	1418	1618	1624	1737	1821
Upper Warlingham Station	1020	1220	1420	1620	1626	1739	1823
Warlingham Green	1025	1225	1425	1625	1631	1744	1828
Warlingham Sainsbury's	1027	1227	1427	1627	1633	1746	1830
Farleigh Harrow	....	....	....	....	1637	....	....
Chelsham Common Great Park	....	....	....	....	1640	....	....
Farleigh Harrow	....	....	....	....	1643	....	....
Selsdon Library	....	....	....	....	1649	....	....

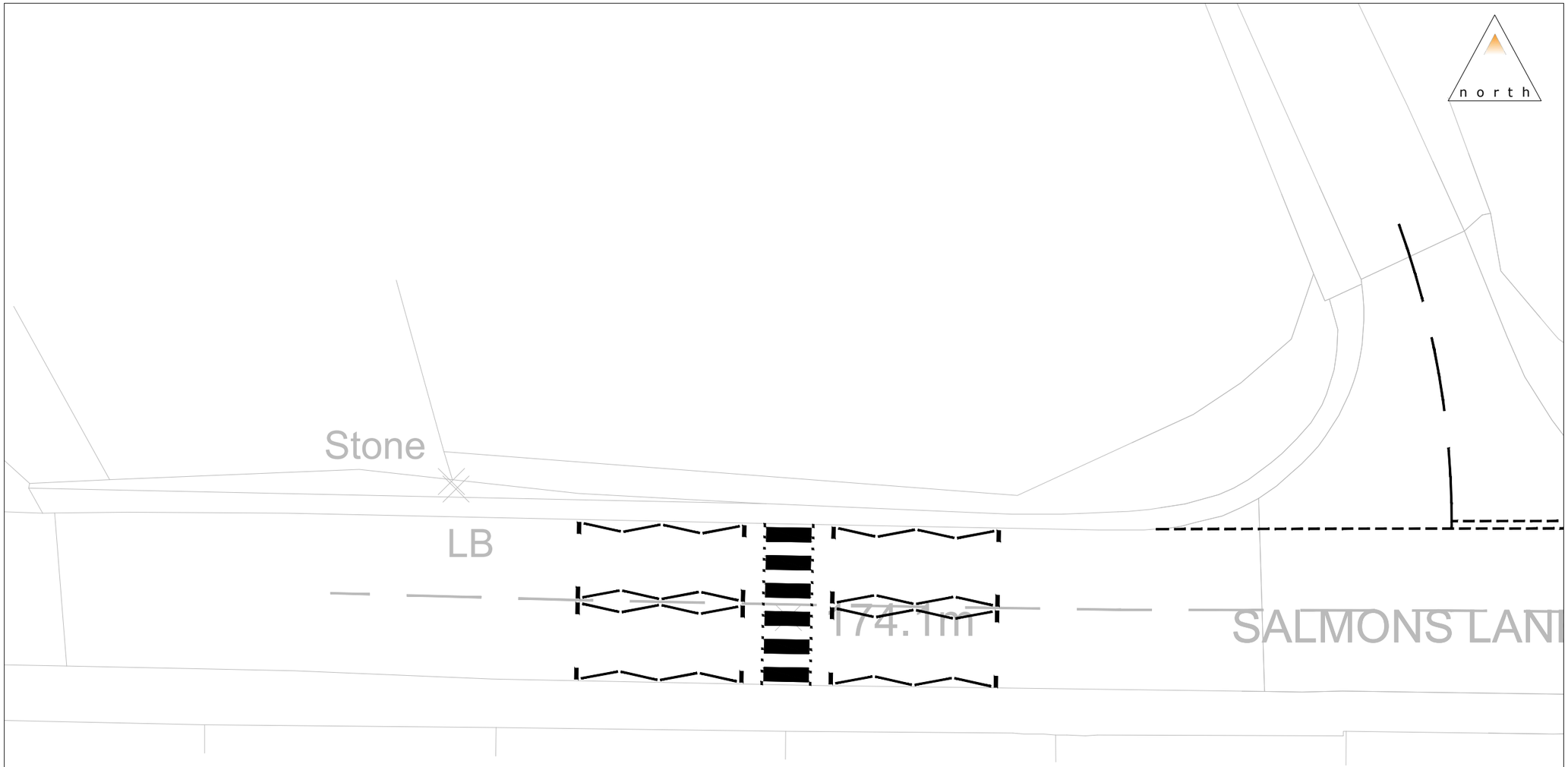
CODE: **SDO** Schooldays only. **NSD** Non-schooldays. Rail Station nearby.

No service on Saturdays, Sundays or Public Holidays

Service **411** is supported by SURREY COUNTY COUNCIL

Appendix E

Potential Improvements



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0 metres 10

C:\Users\drodgers\Motion\Staff Site - Projects\Projects\2106055 Victor Beamish Avenue, Caterham\TP Drawings\2106055-03.dwg

Rev:	Description:	Date:	Rev By:	Chk'd:

motion

9 Greyfriars, Reading, Berkshire, RG1 1NU

T: 0118 206 2930

Guildford - London - Reading

www.motion.co.uk

Project:
Victor Beamish Avenue, Caterham

Title:
Potential Zebra Crossing Design on Salmons Lane

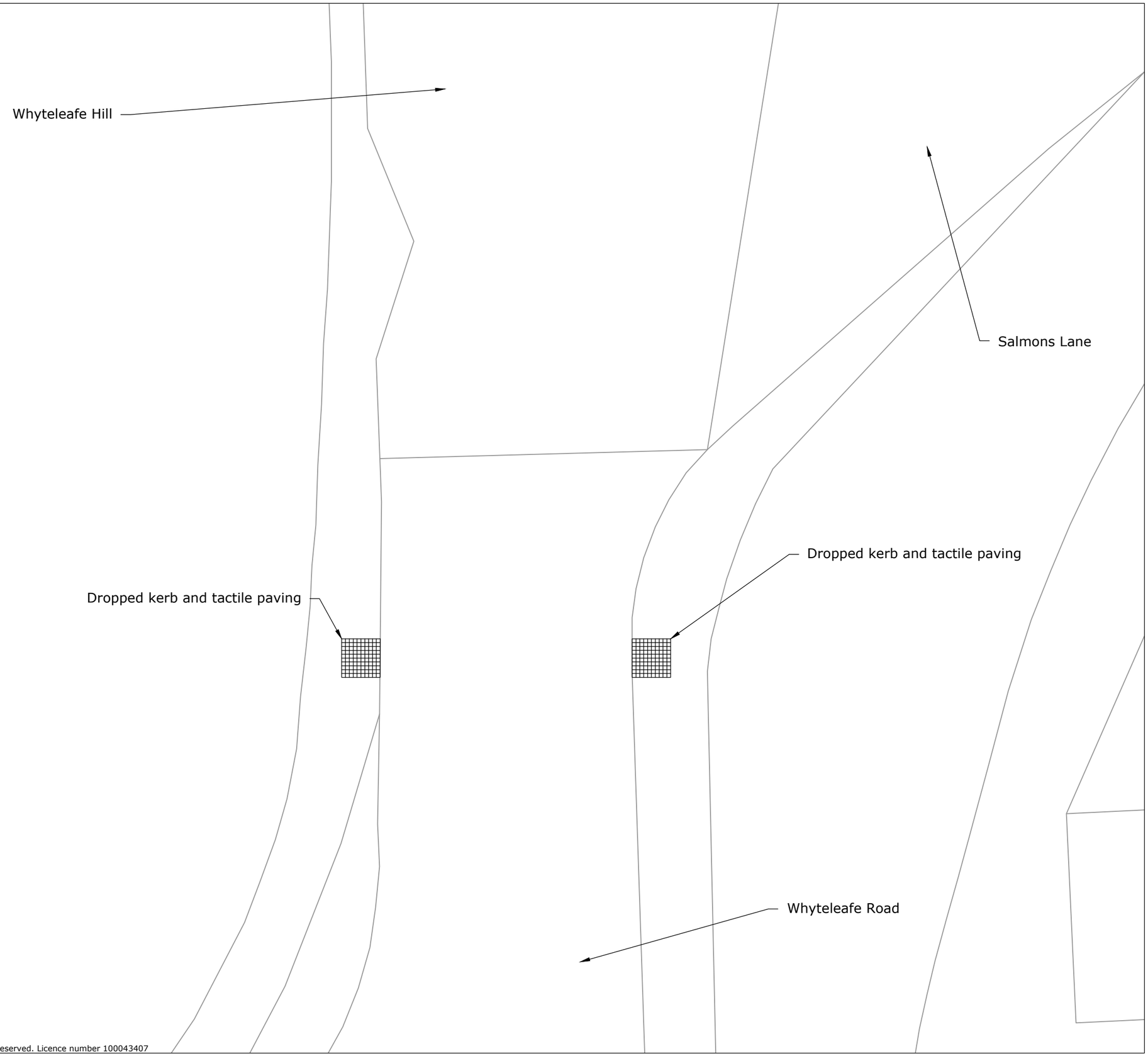
Client:

Drawing Status:

Scale: 1:250 (@ A3) Date:11/01/2024

Drawn: DR Checked: DM Approved: DM

Drawing: 2106055-03 Revision:



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Rev:	Description:	Date:	Rev By:	Chk'd:

motion

Guildford - London - Reading
www.motion.co.uk

Project:
Salmons Lane West, Caterham

Title:
Potential Dropped Kerb and Tactile Paving on Whyteleafe Road

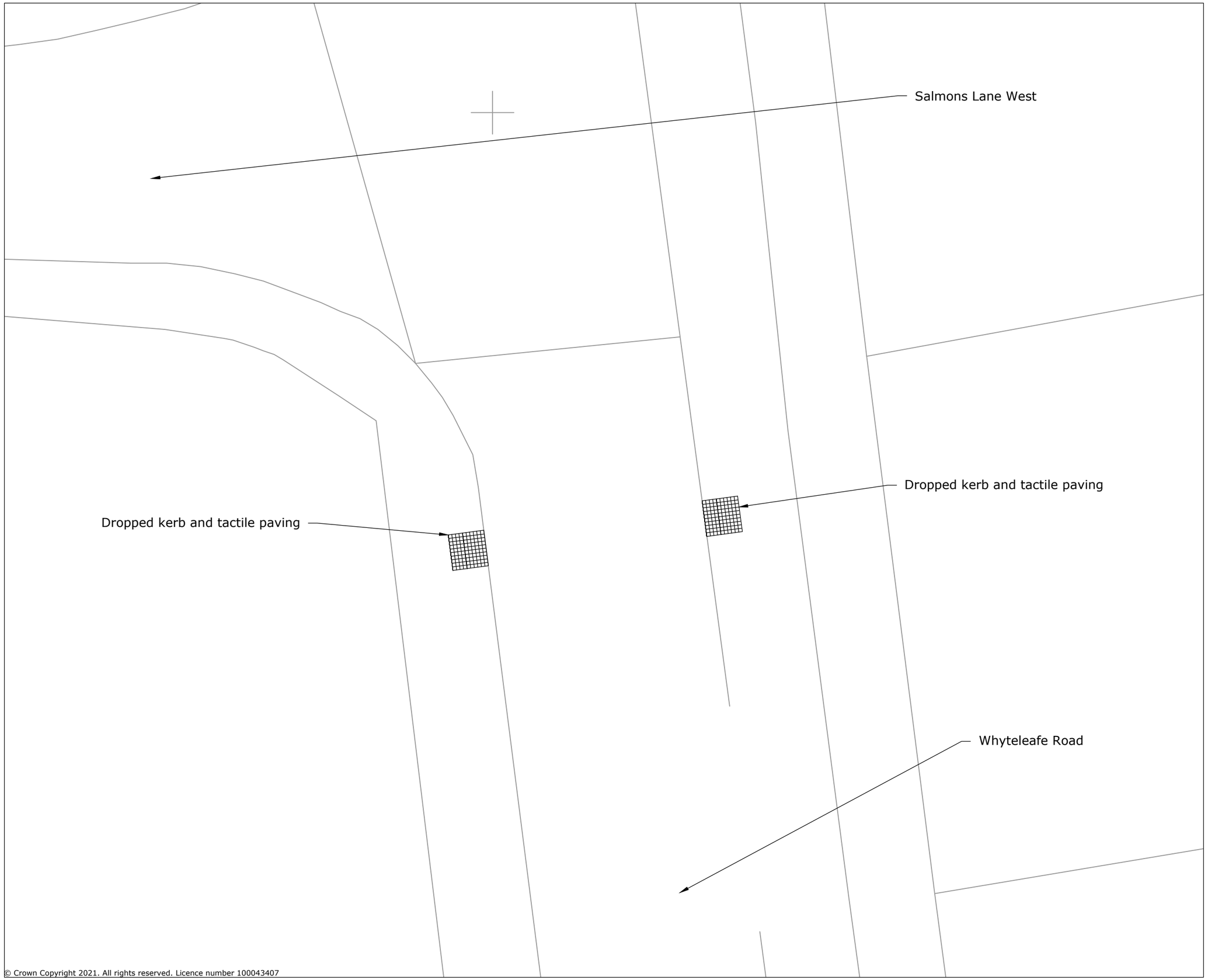
Client:
Daniel Watney Chartered Surveyors

Drawing Status:

Scale: 1:100 (@ A3) Date: 15/01/24

Drawn: EF Checked: DM Approved: DM

Drawing: 2106055-04 Revision:



C:\Users\eford\Motion\StaffSite - Dwcate 2106055\Drawings\2106055-04 05 And 06.dwg

Rev:	Description:	Date:	Rev By:	Chk'd:

motion

Guildford - London - Reading
www.motion.co.uk

Project:
Salmons Lane West, Caterham

Title:
Potential Dropped Kerb and Tactile Paving on Whyteleafe Road

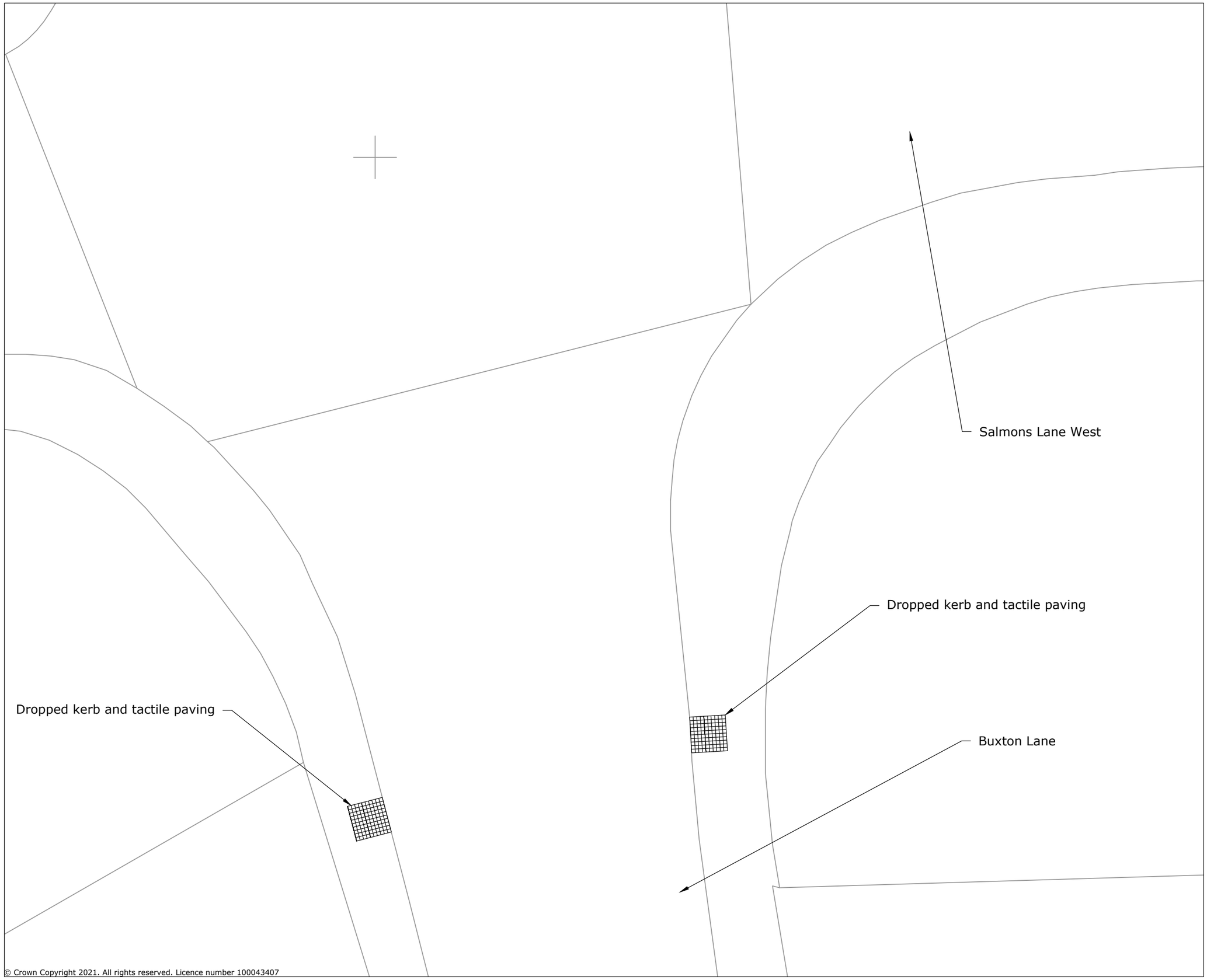
Client:
Daniel Watney Chartered Surveyors

Drawing Status:

Scale: 1:100 (@ A3) Date: 15/01/24

Drawn: EF Checked: DM Approved: DM

Drawing: Revision:
2106055-05



Rev:	Description:	Date:	Rev By:	Chk'd:

motion

Guildford - London - Reading
www.motion.co.uk

Project:
Salmons Lane West, Caterham

Title:
Potential Dropped Kerb and Tactile Paving on Buxton Lane

Client:
Daniel Watney Chartered Surveyors

Drawing Status:

Scale: 1:100 (@ A3) Date: 15/01/24

Drawn: EF Checked: DM Approved: DM

Drawing: 2106055-06 Revision:

C:\Users\eford\Motion\StaffSite - Dwcate 2106055\Drawings\2106055-04 05 And 06.dwg

Appendix F

January 2024 Updated Modelling

Junctions 9

ARCADY 9 - Roundabout Module

Filename: Mini Rbt (2024).j9
Path: C:\Users\davidmcmurtary\Documents
Report generation date: 16/01/2024 13:05:05

Summary of junction performance

	AM					PM				
	Set ID	Queue (Veh)	Delay (s)	RFC	LOS	Set ID	Queue (Veh)	Delay (s)	RFC	LOS
	2023									
1 - Salmons Lane West	D1	1.1	10.72	0.53	B	D2	1.0	9.56	0.51	A
2 - Buxton Lane (s)		0.8	8.01	0.45	A		0.7	7.73	0.42	A
3 - Ninehams Road		6.4	59.74	0.89	F		2.2	24.96	0.70	C
4 - Buxton Lane (n)		2.5	24.59	0.72	C		1.2	13.60	0.55	B
	2028									
1 - Salmons Lane West	D3	1.2	11.56	0.56	B	D4	1.1	10.21	0.54	B
2 - Buxton Lane (s)		0.9	8.42	0.48	A		0.8	8.11	0.44	A
3 - Ninehams Road		9.3	82.41	0.94	F		2.6	28.93	0.73	D
4 - Buxton Lane (n)		3.0	29.23	0.76	D		1.3	14.78	0.58	B
	2028 + Development									
1 - Salmons Lane West	D7	1.5	13.02	0.61	B	D8	1.2	10.53	0.55	B
2 - Buxton Lane (s)		0.9	8.61	0.49	A		0.9	8.50	0.47	A
3 - Ninehams Road		10.0	88.00	0.95	F		2.9	32.38	0.76	D
4 - Buxton Lane (n)		3.1	30.18	0.77	D		1.4	15.68	0.59	C

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

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

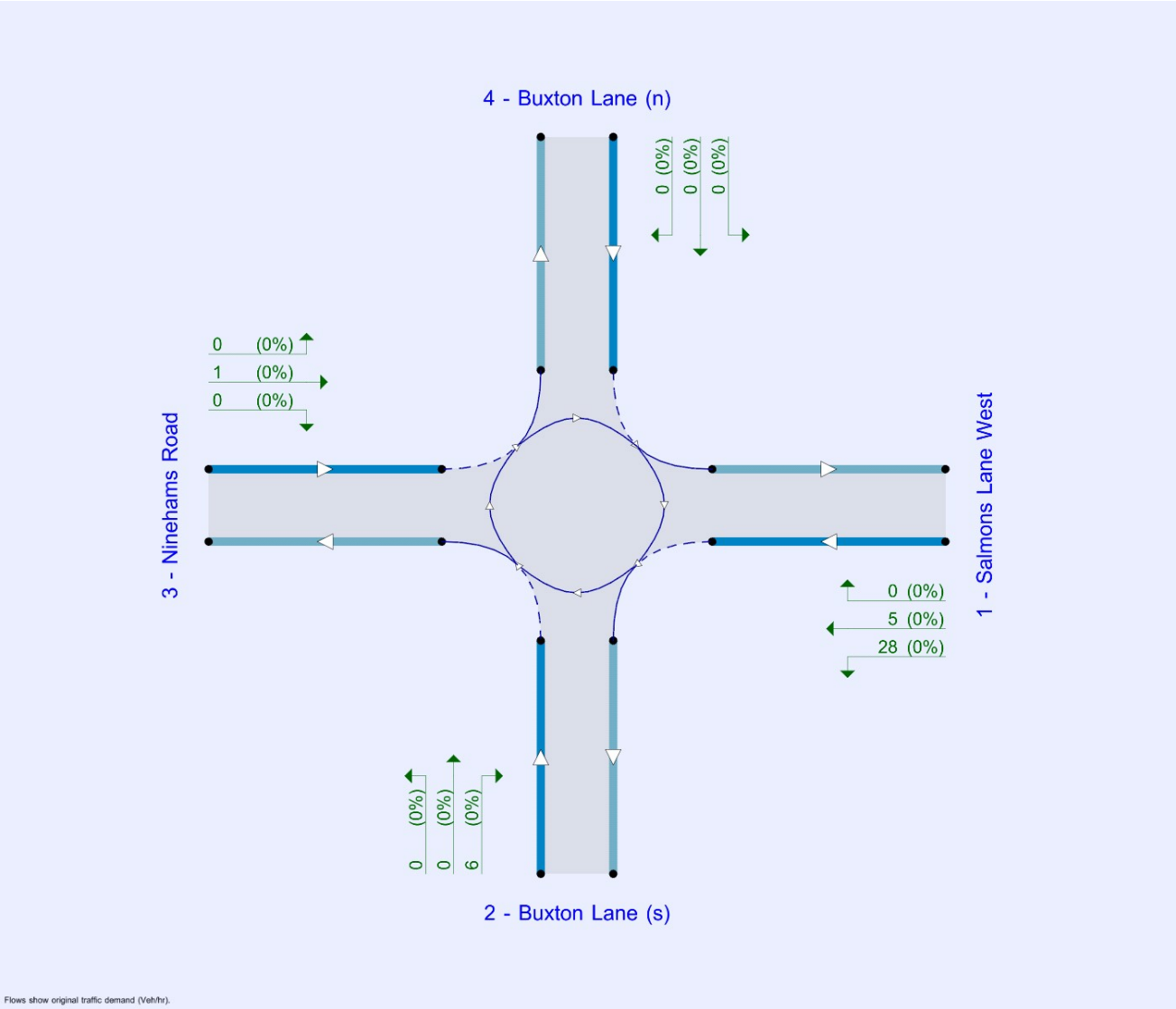
File summary

File Description

Title	
Location	
Site number	
Date	19/05/2023
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	MOTION\meganslade
Description	

Units

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



The junction diagram reflects the last run of Junctions.

Analysis Options

Mini-roundabout model	Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
JUNCTIONS 9	5.75				0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically	Relationship type	Relationship
D1	2023	AM	ONE HOUR	08:00	09:30	15	✓		
D2	2023	PM	ONE HOUR	17:00	18:30	15	✓		
D3	2028	AM	ONE HOUR	08:00	09:30	15	✓	Simple	D1*1.0386
D4	2028	PM	ONE HOUR	17:00	18:30	15	✓	Simple	D2*1.038
D5	Development	AM	ONE HOUR	08:00	09:30	15			
D6	Development	PM	ONE HOUR	17:00	18:30	15			
D7	2028 + Development	AM	ONE HOUR	08:00	09:30	15	✓	Simple	D3+D5
D8	2028 + Development	PM	ONE HOUR	17:00	18:30	15	✓	Simple	D4+D6

Analysis Set Details

ID	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	✓	100.000	100.000

2023, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Demand Set Relationship	D7 - 2028 + Development, AM	Demand Set relationships are chained. This may slow down the file.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout		1, 2, 3, 4	26.57	D

Junction Network Options

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

Arms

Arms

Arm	Name	Description
1	Salmons Lane West	
2	Buxton Lane (s)	
3	Ninehams Road	
4	Buxton Lane (n)	

Mini Roundabout Geometry

Arm	Approach road half-width (m)	Minimum approach road half-width (m)	Entry width (m)	Effective flare length (m)	Distance to next arm (m)	Entry corner kerb line distance (m)	Gradient over 50m (%)	Kerbed central island
1 - Salmons Lane West	4.05	4.05	4.72	2.9	14.86	9.72	0.0	
2 - Buxton Lane (s)	3.85	3.85	3.97	5.0	13.22	9.40	0.0	
3 - Ninehams Road	2.74	2.74	3.26	3.5	8.78	2.00	5.4	
4 - Buxton Lane (n)	3.23	3.23	3.33	2.0	16.14	13.77	0.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1 - Salmons Lane West	0.646	1012
2 - Buxton Lane (s)	0.628	1034
3 - Ninehams Road	0.529	679
4 - Buxton Lane (n)	0.616	831

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2023	AM	ONE HOUR	08:00	09:30	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - Salmons Lane West		ONE HOUR	✓	345	100.000
2 - Buxton Lane (s)		ONE HOUR	✓	340	100.000
3 - Ninehams Road		ONE HOUR	✓	378	100.000
4 - Buxton Lane (n)		ONE HOUR	✓	340	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - Salmons Lane West	2 - Buxton Lane (s)	3 - Ninehams Road	4 - Buxton Lane (n)
From	1 - Salmons Lane West	0	115	178	52
	2 - Buxton Lane (s)	142	0	45	153
	3 - Ninehams Road	192	115	0	71
	4 - Buxton Lane (n)	53	242	45	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - Salmons Lane West	2 - Buxton Lane (s)	3 - Ninehams Road	4 - Buxton Lane (n)
From	1 - Salmons Lane West	0	2	1	2
	2 - Buxton Lane (s)	4	0	0	1
	3 - Ninehams Road	1	0	0	3
	4 - Buxton Lane (n)	2	0	4	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - Salmons Lane West	0.53	10.72	1.1	B	317	475
2 - Buxton Lane (s)	0.45	8.01	0.8	A	312	468
3 - Ninehams Road	0.89	59.74	6.4	F	347	520
4 - Buxton Lane (n)	0.72	24.59	2.5	C	312	468

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Salmons Lane West	260	65	299	806	0.322	258	288	0.0	0.5	6.541	A
2 - Buxton Lane (s)	256	64	205	884	0.289	254	351	0.0	0.4	5.700	A
3 - Ninehams Road	285	71	260	532	0.535	280	200	0.0	1.1	14.045	B
4 - Buxton Lane (n)	256	64	334	617	0.415	253	206	0.0	0.7	9.831	A

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Salmons Lane West	310	78	359	768	0.404	309	346	0.5	0.7	7.839	A
2 - Buxton Lane (s)	306	76	246	859	0.356	305	422	0.4	0.5	6.494	A
3 - Ninehams Road	340	85	311	505	0.674	337	240	1.1	1.9	21.007	C
4 - Buxton Lane (n)	306	76	401	575	0.531	304	247	0.7	1.1	13.200	B

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Salmons Lane West	380	95	434	720	0.528	378	418	0.7	1.1	10.484	B
2 - Buxton Lane (s)	374	94	301	825	0.454	373	511	0.5	0.8	7.955	A
3 - Ninehams Road	416	104	381	467	0.891	402	293	1.9	5.5	47.068	E
4 - Buxton Lane (n)	374	94	482	524	0.714	370	300	1.1	2.3	22.558	C

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Salmons Lane West	380	95	441	715	0.531	380	424	1.1	1.1	10.718	B
2 - Buxton Lane (s)	374	94	303	824	0.454	374	518	0.8	0.8	8.009	A
3 - Ninehams Road	416	104	382	467	0.892	413	295	5.5	6.4	59.742	F
4 - Buxton Lane (n)	374	94	491	519	0.722	374	303	2.3	2.5	24.590	C

09:00 - 09:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Salmons Lane West	310	78	371	760	0.408	312	358	1.1	0.7	8.055	A
2 - Buxton Lane (s)	306	76	249	857	0.357	307	433	0.8	0.6	6.551	A
3 - Ninehams Road	340	85	313	504	0.675	357	243	6.4	2.2	26.778	D
4 - Buxton Lane (n)	306	76	418	565	0.541	311	252	2.5	1.2	14.430	B

09:15 - 09:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Salmons Lane West	260	65	306	802	0.324	261	294	0.7	0.5	6.660	A
2 - Buxton Lane (s)	256	64	208	883	0.290	257	358	0.6	0.4	5.752	A
3 - Ninehams Road	285	71	262	531	0.536	289	203	2.2	1.2	15.097	C
4 - Buxton Lane (n)	256	64	342	612	0.418	258	209	1.2	0.7	10.228	B

2023, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Demand Set Relationship	D7 - 2028 + Development, AM	Demand Set relationships are chained. This may slow down the file.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout		1, 2, 3, 4	13.68	B

Junction Network Options

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	2023	PM	ONE HOUR	17:00	18:30	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - Salmons Lane West		ONE HOUR	✓	358	100.000
2 - Buxton Lane (s)		ONE HOUR	✓	308	100.000
3 - Ninehams Road		ONE HOUR	✓	296	100.000
4 - Buxton Lane (n)		ONE HOUR	✓	291	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - Salmons Lane West	2 - Buxton Lane (s)	3 - Ninehams Road	4 - Buxton Lane (n)
From	1 - Salmons Lane West	0	88	198	72
	2 - Buxton Lane (s)	109	0	20	179
	3 - Ninehams Road	167	78	0	51
	4 - Buxton Lane (n)	35	195	61	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - Salmons Lane West	2 - Buxton Lane (s)	3 - Ninehams Road	4 - Buxton Lane (n)
From	1 - Salmons Lane West	0	1	0	0
	2 - Buxton Lane (s)	0	0	0	0
	3 - Ninehams Road	0	0	0	0
	4 - Buxton Lane (n)	0	1	2	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - Salmons Lane West	0.51	9.56	1.0	A	329	493
2 - Buxton Lane (s)	0.42	7.73	0.7	A	283	424
3 - Ninehams Road	0.70	24.96	2.2	C	272	407
4 - Buxton Lane (n)	0.55	13.60	1.2	B	267	401

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Salmons Lane West	270	67	249	848	0.318	268	232	0.0	0.5	6.185	A
2 - Buxton Lane (s)	232	58	247	878	0.264	230	269	0.0	0.4	5.543	A
3 - Ninehams Road	223	56	269	536	0.416	220	209	0.0	0.7	11.297	B
4 - Buxton Lane (n)	219	55	264	661	0.331	217	226	0.0	0.5	8.070	A

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Salmons Lane West	322	80	299	815	0.395	321	278	0.5	0.6	7.276	A
2 - Buxton Lane (s)	277	69	297	847	0.327	276	323	0.4	0.5	6.300	A
3 - Ninehams Road	266	67	323	508	0.524	265	250	0.7	1.1	14.718	B
4 - Buxton Lane (n)	262	65	317	629	0.416	261	271	0.5	0.7	9.756	A

17:30 - 17:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Salmons Lane West	394	99	365	772	0.510	393	340	0.6	1.0	9.443	A
2 - Buxton Lane (s)	339	85	363	806	0.421	338	395	0.5	0.7	7.685	A
3 - Ninehams Road	326	81	395	469	0.694	322	306	1.1	2.1	23.718	C
4 - Buxton Lane (n)	320	80	386	587	0.546	319	331	0.7	1.2	13.324	B

17:45 - 18:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Salmons Lane West	394	99	368	771	0.511	394	342	1.0	1.0	9.558	A
2 - Buxton Lane (s)	339	85	364	805	0.421	339	397	0.7	0.7	7.729	A
3 - Ninehams Road	326	81	396	469	0.695	326	307	2.1	2.2	24.965	C
4 - Buxton Lane (n)	320	80	389	585	0.548	320	332	1.2	1.2	13.603	B

18:00 - 18:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Salmons Lane West	322	80	303	813	0.396	323	282	1.0	0.7	7.377	A
2 - Buxton Lane (s)	277	69	299	846	0.327	278	327	0.7	0.5	6.348	A
3 - Ninehams Road	266	67	325	507	0.525	270	252	2.2	1.1	15.477	C
4 - Buxton Lane (n)	262	65	322	626	0.418	263	273	1.2	0.7	9.984	A

18:15 - 18:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Salmons Lane West	270	67	253	845	0.319	270	235	0.7	0.5	6.267	A
2 - Buxton Lane (s)	232	58	250	877	0.264	232	273	0.5	0.4	5.592	A
3 - Ninehams Road	223	56	272	535	0.417	224	211	1.1	0.7	11.661	B
4 - Buxton Lane (n)	219	55	268	659	0.333	220	228	0.7	0.5	8.225	A

2028, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Demand Set Relationship	D7 - 2028 + Development, AM	Demand Set relationships are chained. This may slow down the file.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout		1, 2, 3, 4	34.08	D

Junction Network Options

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically	Relationship type	Relationship
D3	2028	AM	ONE HOUR	08:00	09:30	15	✓	Simple	D1*1.0386

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - Salmons Lane West		ONE HOUR	✓	358	100.000
2 - Buxton Lane (s)		ONE HOUR	✓	353	100.000
3 - Ninehams Road		ONE HOUR	✓	393	100.000
4 - Buxton Lane (n)		ONE HOUR	✓	353	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - Salmons Lane West	2 - Buxton Lane (s)	3 - Ninehams Road	4 - Buxton Lane (n)
From	1 - Salmons Lane West	0	119	185	54
	2 - Buxton Lane (s)	147	0	47	159
	3 - Ninehams Road	199	119	0	74
	4 - Buxton Lane (n)	55	251	47	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - Salmons Lane West	2 - Buxton Lane (s)	3 - Ninehams Road	4 - Buxton Lane (n)
From	1 - Salmons Lane West	0	2	1	2
	2 - Buxton Lane (s)	4	0	0	1
	3 - Ninehams Road	1	0	0	3
	4 - Buxton Lane (n)	2	0	4	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - Salmons Lane West	0.56	11.56	1.2	B	329	493
2 - Buxton Lane (s)	0.48	8.42	0.9	A	324	486
3 - Ninehams Road	0.94	82.41	9.3	F	360	540
4 - Buxton Lane (n)	0.76	29.23	3.0	D	324	486

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Salmons Lane West	270	67	310	799	0.338	268	299	0.0	0.5	6.750	A
2 - Buxton Lane (s)	266	66	213	880	0.302	264	365	0.0	0.4	5.833	A
3 - Ninehams Road	296	74	270	527	0.561	291	208	0.0	1.2	14.950	B
4 - Buxton Lane (n)	266	66	346	609	0.437	263	214	0.0	0.8	10.316	B

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Salmons Lane West	322	81	373	759	0.424	321	359	0.5	0.7	8.201	A
2 - Buxton Lane (s)	317	79	256	853	0.372	317	438	0.4	0.6	6.706	A
3 - Ninehams Road	353	88	323	498	0.709	349	249	1.2	2.2	23.480	C
4 - Buxton Lane (n)	317	79	416	566	0.561	316	257	0.8	1.2	14.271	B

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Salmons Lane West	395	99	448	711	0.555	393	431	0.7	1.2	11.242	B
2 - Buxton Lane (s)	389	97	312	818	0.476	388	528	0.6	0.9	8.347	A
3 - Ninehams Road	432	108	395	459	0.941	412	304	2.2	7.4	58.769	F
4 - Buxton Lane (n)	389	97	496	516	0.754	383	311	1.2	2.8	25.930	D

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Salmons Lane West	395	99	457	705	0.559	394	439	1.2	1.2	11.562	B
2 - Buxton Lane (s)	389	97	314	816	0.476	389	537	0.9	0.9	8.416	A
3 - Ninehams Road	432	108	397	459	0.942	425	306	7.4	9.3	82.409	F
4 - Buxton Lane (n)	389	97	507	509	0.764	388	314	2.8	3.0	29.226	D

09:00 - 09:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Salmons Lane West	322	81	389	749	0.430	324	376	1.2	0.8	8.510	A
2 - Buxton Lane (s)	317	79	259	851	0.373	319	454	0.9	0.6	6.776	A
3 - Ninehams Road	353	88	325	497	0.710	379	252	9.3	2.7	35.606	E
4 - Buxton Lane (n)	317	79	441	550	0.577	324	263	3.0	1.4	16.315	C

09:15 - 09:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Salmons Lane West	270	67	318	794	0.340	271	306	0.8	0.5	6.890	A
2 - Buxton Lane (s)	266	66	216	878	0.303	267	373	0.6	0.4	5.896	A
3 - Ninehams Road	296	74	272	526	0.562	301	210	2.7	1.3	16.390	C
4 - Buxton Lane (n)	266	66	356	603	0.441	268	217	1.4	0.8	10.832	B

2028, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Demand Set Relationship	D7 - 2028 + Development, AM	Demand Set relationships are chained. This may slow down the file.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout		1, 2, 3, 4	15.17	C

Junction Network Options

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically	Relationship type	Relationship
D4	2028	PM	ONE HOUR	17:00	18:30	15	✓	Simple	D2*1.038

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - Salmons Lane West		ONE HOUR	✓	372	100.000
2 - Buxton Lane (s)		ONE HOUR	✓	320	100.000
3 - Ninehams Road		ONE HOUR	✓	307	100.000
4 - Buxton Lane (n)		ONE HOUR	✓	302	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - Salmons Lane West	2 - Buxton Lane (s)	3 - Ninehams Road	4 - Buxton Lane (n)
From	1 - Salmons Lane West	0	91	206	75
	2 - Buxton Lane (s)	113	0	21	186
	3 - Ninehams Road	173	81	0	53
	4 - Buxton Lane (n)	36	202	63	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - Salmons Lane West	2 - Buxton Lane (s)	3 - Ninehams Road	4 - Buxton Lane (n)
From	1 - Salmons Lane West	0	1	0	0
	2 - Buxton Lane (s)	0	0	0	0
	3 - Ninehams Road	0	0	0	0
	4 - Buxton Lane (n)	0	1	2	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - Salmons Lane West	0.54	10.21	1.1	B	341	511
2 - Buxton Lane (s)	0.44	8.11	0.8	A	293	440
3 - Ninehams Road	0.73	28.93	2.6	D	282	423
4 - Buxton Lane (n)	0.58	14.78	1.3	B	277	416

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Salmons Lane West	280	70	258	842	0.332	278	241	0.0	0.5	6.363	A
2 - Buxton Lane (s)	241	60	257	873	0.276	239	279	0.0	0.4	5.669	A
3 - Ninehams Road	231	58	280	531	0.436	228	216	0.0	0.8	11.792	B
4 - Buxton Lane (n)	227	57	274	655	0.347	225	234	0.0	0.5	8.333	A

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Salmons Lane West	334	84	310	808	0.414	333	289	0.5	0.7	7.573	A
2 - Buxton Lane (s)	287	72	308	840	0.342	287	336	0.4	0.5	6.498	A
3 - Ninehams Road	276	69	335	501	0.551	274	260	0.8	1.2	15.756	C
4 - Buxton Lane (n)	272	68	329	622	0.437	271	281	0.5	0.8	10.224	B

17:30 - 17:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Salmons Lane West	409	102	378	764	0.536	407	352	0.7	1.1	10.057	B
2 - Buxton Lane (s)	352	88	377	797	0.442	351	409	0.5	0.8	8.050	A
3 - Ninehams Road	338	85	410	462	0.733	333	317	1.2	2.5	26.967	D
4 - Buxton Lane (n)	333	83	400	578	0.575	330	343	0.8	1.3	14.389	B

17:45 - 18:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Salmons Lane West	409	102	381	762	0.537	409	355	1.1	1.1	10.207	B
2 - Buxton Lane (s)	352	88	378	796	0.442	352	412	0.8	0.8	8.105	A
3 - Ninehams Road	338	85	411	461	0.734	338	319	2.5	2.6	28.933	D
4 - Buxton Lane (n)	333	83	404	576	0.578	332	345	1.3	1.3	14.775	B

18:00 - 18:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Salmons Lane West	334	84	315	805	0.415	336	294	1.1	0.7	7.702	A
2 - Buxton Lane (s)	287	72	311	839	0.343	288	340	0.8	0.5	6.557	A
3 - Ninehams Road	276	69	337	500	0.552	282	262	2.6	1.3	16.840	C
4 - Buxton Lane (n)	272	68	335	618	0.440	274	284	1.3	0.8	10.527	B

18:15 - 18:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Salmons Lane West	280	70	262	839	0.333	281	244	0.7	0.5	6.455	A
2 - Buxton Lane (s)	241	60	260	871	0.276	241	284	0.5	0.4	5.722	A
3 - Ninehams Road	231	58	282	529	0.437	233	219	1.3	0.8	12.236	B
4 - Buxton Lane (n)	227	57	278	652	0.349	228	237	0.8	0.5	8.515	A

2028 + Development, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Demand Set Relationship	D7 - 2028 + Development, AM	Demand Set relationships are chained. This may slow down the file.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout		1, 2, 3, 4	35.65	E

Junction Network Options

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically	Relationship type	Relationship
D7	2028 + Development	AM	ONE HOUR	08:00	09:30	15	✓	Simple	D3+D5

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - Salmons Lane West		ONE HOUR	✓	391	100.000
2 - Buxton Lane (s)		ONE HOUR	✓	359	100.000
3 - Ninehams Road		ONE HOUR	✓	394	100.000
4 - Buxton Lane (n)		ONE HOUR	✓	353	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - Salmons Lane West	2 - Buxton Lane (s)	3 - Ninehams Road	4 - Buxton Lane (n)
From	1 - Salmons Lane West	0	147	190	54
	2 - Buxton Lane (s)	153	0	47	159
	3 - Ninehams Road	200	119	0	74
	4 - Buxton Lane (n)	55	251	47	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - Salmons Lane West	2 - Buxton Lane (s)	3 - Ninehams Road	4 - Buxton Lane (n)
From	1 - Salmons Lane West	0	2	1	2
	2 - Buxton Lane (s)	4	0	0	1
	3 - Ninehams Road	1	0	0	3
	4 - Buxton Lane (n)	2	0	4	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - Salmons Lane West	0.61	13.02	1.5	B	359	539
2 - Buxton Lane (s)	0.49	8.61	0.9	A	330	494
3 - Ninehams Road	0.95	88.00	10.0	F	361	542
4 - Buxton Lane (n)	0.77	30.18	3.1	D	324	486

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Salmons Lane West	295	74	310	800	0.368	292	304	0.0	0.6	7.059	A
2 - Buxton Lane (s)	270	68	217	878	0.308	269	386	0.0	0.4	5.895	A
3 - Ninehams Road	296	74	274	525	0.565	291	212	0.0	1.2	15.132	C
4 - Buxton Lane (n)	266	66	352	606	0.439	263	214	0.0	0.8	10.410	B

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Salmons Lane West	352	88	372	760	0.463	351	365	0.6	0.8	8.766	A
2 - Buxton Lane (s)	323	81	260	851	0.380	322	463	0.4	0.6	6.805	A
3 - Ninehams Road	354	88	329	495	0.714	350	254	1.2	2.3	24.012	C
4 - Buxton Lane (n)	317	79	422	562	0.565	316	256	0.8	1.3	14.482	B

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Salmons Lane West	431	108	448	712	0.605	428	437	0.8	1.5	12.574	B
2 - Buxton Lane (s)	395	99	318	815	0.485	394	558	0.6	0.9	8.533	A
3 - Ninehams Road	433	108	402	456	0.950	411	310	2.3	7.8	61.449	F
4 - Buxton Lane (n)	389	97	503	512	0.760	383	311	1.3	2.8	26.611	D

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Salmons Lane West	431	108	456	707	0.610	431	446	1.5	1.5	13.025	B
2 - Buxton Lane (s)	395	99	320	813	0.486	395	567	0.9	0.9	8.611	A
3 - Ninehams Road	433	108	403	455	0.952	425	312	7.8	10.0	88.005	F
4 - Buxton Lane (n)	389	97	514	505	0.770	388	314	2.8	3.1	30.183	D

09:00 - 09:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Salmons Lane West	352	88	390	749	0.470	354	384	1.5	0.9	9.173	A
2 - Buxton Lane (s)	323	81	264	848	0.381	324	480	0.9	0.6	6.882	A
3 - Ninehams Road	354	88	331	494	0.716	383	257	10.0	2.8	38.182	E
4 - Buxton Lane (n)	317	79	449	545	0.582	324	264	3.1	1.5	16.733	C

09:15 - 09:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Salmons Lane West	295	74	318	795	0.371	296	311	0.9	0.6	7.229	A
2 - Buxton Lane (s)	270	68	220	876	0.309	271	394	0.6	0.5	5.961	A
3 - Ninehams Road	296	74	277	523	0.566	302	214	2.8	1.4	16.668	C
4 - Buxton Lane (n)	266	66	361	600	0.443	268	217	1.5	0.8	10.947	B

2028 + Development, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Demand Set Relationship	D7 - 2028 + Development, AM	Demand Set relationships are chained. This may slow down the file.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout		1, 2, 3, 4	16.27	C

Junction Network Options

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically	Relationship type	Relationship
D8	2028 + Development	PM	ONE HOUR	17:00	18:30	15	✓	Simple	D4+D6

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - Salmons Lane West		ONE HOUR	✓	382	100.000
2 - Buxton Lane (s)		ONE HOUR	✓	338	100.000
3 - Ninehams Road		ONE HOUR	✓	310	100.000
4 - Buxton Lane (n)		ONE HOUR	✓	302	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - Salmons Lane West	2 - Buxton Lane (s)	3 - Ninehams Road	4 - Buxton Lane (n)
From	1 - Salmons Lane West	0	100	207	75
	2 - Buxton Lane (s)	131	0	21	186
	3 - Ninehams Road	176	81	0	53
	4 - Buxton Lane (n)	36	202	63	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - Salmons Lane West	2 - Buxton Lane (s)	3 - Ninehams Road	4 - Buxton Lane (n)
From	1 - Salmons Lane West	0	1	0	0
	2 - Buxton Lane (s)	0	0	0	0
	3 - Ninehams Road	0	0	0	0
	4 - Buxton Lane (n)	0	1	2	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - Salmons Lane West	0.55	10.53	1.2	B	350	525
2 - Buxton Lane (s)	0.47	8.50	0.9	A	310	465
3 - Ninehams Road	0.76	32.38	2.9	D	285	427
4 - Buxton Lane (n)	0.59	15.68	1.4	C	277	416

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Salmons Lane West	287	72	258	842	0.341	285	256	0.0	0.5	6.445	A
2 - Buxton Lane (s)	254	64	257	872	0.292	253	286	0.0	0.4	5.795	A
3 - Ninehams Road	234	58	293	524	0.446	230	217	0.0	0.8	12.156	B
4 - Buxton Lane (n)	227	57	289	646	0.352	225	234	0.0	0.5	8.519	A

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Salmons Lane West	343	86	310	808	0.425	342	308	0.5	0.7	7.714	A
2 - Buxton Lane (s)	304	76	309	840	0.362	303	344	0.4	0.6	6.701	A
3 - Ninehams Road	279	70	351	493	0.566	277	261	0.8	1.3	16.543	C
4 - Buxton Lane (n)	272	68	347	610	0.445	271	281	0.5	0.8	10.564	B

17:30 - 17:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Salmons Lane West	420	105	378	764	0.550	418	374	0.7	1.2	10.361	B
2 - Buxton Lane (s)	372	93	378	796	0.467	371	419	0.6	0.9	8.429	A
3 - Ninehams Road	342	85	430	451	0.757	336	318	1.3	2.8	29.674	D
4 - Buxton Lane (n)	333	83	422	565	0.589	330	343	0.8	1.4	15.193	C

17:45 - 18:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Salmons Lane West	420	105	381	762	0.552	420	378	1.2	1.2	10.531	B
2 - Buxton Lane (s)	372	93	379	795	0.468	372	422	0.9	0.9	8.498	A
3 - Ninehams Road	342	85	431	450	0.758	341	320	2.8	2.9	32.379	D
4 - Buxton Lane (n)	333	83	427	562	0.592	332	345	1.4	1.4	15.676	C

18:00 - 18:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Salmons Lane West	343	86	315	805	0.426	345	313	1.2	0.8	7.860	A
2 - Buxton Lane (s)	304	76	312	838	0.362	305	349	0.9	0.6	6.765	A
3 - Ninehams Road	279	70	354	491	0.567	285	263	2.9	1.4	17.934	C
4 - Buxton Lane (n)	272	68	355	606	0.448	274	284	1.4	0.8	10.923	B

18:15 - 18:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Salmons Lane West	287	72	263	839	0.342	288	260	0.8	0.5	6.548	A
2 - Buxton Lane (s)	254	64	260	870	0.292	255	290	0.6	0.4	5.856	A
3 - Ninehams Road	234	58	296	522	0.447	236	220	1.4	0.8	12.663	B
4 - Buxton Lane (n)	227	57	294	643	0.354	229	237	0.8	0.6	8.719	A