Egley Road
Responses to ES Review (Final)
May 2020

Trium Environmental Consulting - 68 - 85 Tabernacle Street - London -- EC2A 4BD
T - +44 (0)20 3887 7118 **E** - hello@triumenv.co.uk

EGLEY ROAD – ES REVIEW RESPONSE TABLE	
An Environmental Statement was submitted on 4 December 2019 for the Egley Road Proposed Development (Planning Ref PLAN/2019/1177). An EIA Scoping Report to determine and agree the scope and methodology of the Environmental Statement was submitted on 24 May 2019 and an EIA Scoping Opinion was received from Woking Borough Council (WBC) on 9 August 2019. The Environmental Statement was based on the EIA Scoping Opinion. The EIA Scoping process identified the environmental technical topics which were considered unlikely to give rise to significant environmental effects. Full justification was provided within the EIA Scoping Report and summarised in the Environmental Statement. The potentially significant environmental issues that were identified during the EIA Scoping process included Air Quality (including a greenhouse gas assessment) (Environmental Statement Volume 1, Chapter 6); and Ecology (Environmental Statement Volume 1, Chapter 7). Following submission of the planning application, WBC appointed an air quality specialist to review the assessment carried out as part of the EIA. The clarifications requested by the air quality specialist, on behalf of WBC, are provided and addressed below. A number of standalone technical assessments were also undertaken and submitted with the planning application. A review of the standalone lighting assessment and standalone noise and vibration assessment submitted with the planning application was also undertaken; whilst not part of the EIA, they are included in the note below for ease of reference. Furthermore, whilst not specifically relating to Environmental Statement Volume 1, Chapter 7: Ecology, the comments from Surrey Wildlife Trust relating the ecological aspects of the planning application have also been addressed within this note for completeness. Similarly, comments received from Surrey County Council Highways Response have been addressed and are provided in Appendix E.	
Nature of Query	**Trium Response**
Wood Technical Note – Review of Air Quality Assessment: Application PLAN/2019/1177 (Appendix A – Initial and final response)	
ES CHAPTER 6: AIR QUALITY	
Chapter 6 of the ES does not detail whether cumulative impacts to air quality have been considered for the operational or construction phase assessments. Even though it is known that residential Block 1 of the Kingfield Road proposed development is due to be occupied in 2021, it is not clear whether traffic associated with this development has been considered. In addition, the construction phases of both developments overlap, so comment should be made on the potential for cumulative impacts from construction traffic.	The EIA Scoping Report that was submitted to WBC stated that cumulative effects would be assessed for schemes within 1km of the site. These schemes would either have full planning consent or a resolution to grant consent, produce an uplift of more than 10,000m^2 (Gross External Area (GEA)) of mixed-use floorspace, or provide over 150 residential units. Whilst the site and the Woking Football Club site are more than 1km apart, the Woking Football Club planning application addressed air quality in the operational and construction phase of the Proposed Development and Working Football Club development combined, for completeness. The combined impacts associated with construction traffic were addressed in paragraph 8.19 of Chapter 8: Air Quality, prepared as part of the Environmental Statement submitted for the Woking Football Club planning application:

	" […]When construction traffic generated by both the Proposed Development and the Egley Road scheme are considered, the maximum additional HDVs along any one road within the study area is still 78 AADT (none of which will pass through the AQMA), as the traffic generated by the two sites will disperse along different roads within the study area. EPUK & IAQM consider that a detailed assessment is required where a development leads to an increase in HDVs of more than 100 AADT outside an AQMA, or 25 AADT within an AQMA; this will not be the case for the Proposed Development, either in isolation or in combination with the Egley Road scheme, therefore, the increase in HDV traffic associated with the construction works is not anticipated to lead to significant air quality effects, and does not warrant further assessment." The cumulative operational impacts of the Proposed Development and Woking Football Club development were also considered, the results of which are also presented in Chapter 8: Air Quality, prepared as part of the Environmental Statement submitted for the Woking Football Club planning application. The assessment considered the combined impacts of traffic and energy plant emissions generated by the Proposed Development and Woking Football Club development, once operational. A conservative approach was adopted, as the increases in traffic and plant emissions associated with fully completed developments were modelled for the earliest year of first occupation of either development (2021). This led to conservative results as, in reality, with the occupation of the Woking Football Club development to be phased between 2021 and 2025, only some of the traffic and plant emissions would occur in 2021. The assessment demonstrated that the Proposed Development in combination with the Woking Football Club development, without mitigation, will not cause any exceedances of the fine particulate matter (PM_{10} or $PM_{2.5}$) objectives at existing sensitive properties, and PM_{10} and $PM_{2.5}$ impacts throughout the study area will be negligible. However, it could cause a new exceedance of the annual mean nitrogen dioxide (NO_2) objective at one existing property (for the 'sensitivity test' scenario only) and may result in moderate adverse NO_2 impacts at some existing properties. However, the assessment has adopted a conservative approach and it has been judged that, with the exception of one receptor location (representative of two residences only), such impacts are unlikely to occur. Overall, the Proposed Development, both in isolation and in combination with the Woking Football Club development, will have a non-significant effect on air quality. In addition to the above, the operational assessments for both the Proposed Development and Woking Football Club Development included a growth in baseline traffic flows, which accounts for other future developments in the area.

	Wood have subsequently agreed that this is acceptable (See Appendix A: final response).
A Dust Management Plan (DMP) including the mitigation measures provided in Annex 6 of Appendix 3 should be produced and agreed by WBC.	This is appropriate to secure by planning condition.
WBC should ensure ASHP are secured by condition or an alternative heating method should be assessed in terms of impact to air quality.	This is appropriate to secure by planning condition.
Energy plant design should be submitted and agreed by WBC, ensuring that parameters do not exceed specifications modelled in the air quality assessment. In this instance, remodelling should be requested.	This is appropriate to secure by planning condition.
WBC should be mindful of the comments made by Surrey County Council regarding validity of predicted traffic flows as these were used in air quality modelling and have the potential to impact robustness of the air quality assessment.	Any necessary update to the assessment (submitted as part of the Environmental Statement), in the event of changes in predicted traffic flows, can be secured by a planning condition.
Wood Technical Note: Review of Noise Assessment – Planning Application PLAN/2019/1177 (Appendix B – Initial and further response)	
STANDALONE NOISE ASSESSMENT	
Plant Noise Limits - Limits do not appear to relate to measured levels in relation to local authority policy requirements.	The plant noise limits are set equal to background based on the BS 4142: 2014. The measured free-field noise levels have been corrected by 3 dB to account for the facade effect where they apply. It is expected that plant noise limits would be conditioned. The recommended limit of a rating level of LATr 30 dB is appropriate for the night-time, given the local authority requirements. A daytime limit of LATr 33 dB would be appropriate. Wood have subsequently agreed and have no further comment.
Commercial Noise Assessment - No BS 4142 assessment has been undertaken for new or existing residential receptors. A BS 4142 assessment for all new and existing residential receptors to demonstrate that commercial noise at these locations will not be significant.	All building services plant will be controlled in line with the limits presented in the report, which includes night-time periods. It was also agreed that the best way to deal with potential delivery noise was with a delivery management plan packaged within the pre-occupation conditioned services delivery document. Wood have subsequently agreed.

The assessment should also include the hour between 6 am and 7 am.	
Tennis Noise - Noise from tennis courts potentially unpredicted at existing residences. Either an updated survey should be undertaken with attended measurements of tennis games or a more robust prediction method should be utilised to ensure peak court use is evaluated for the noise assessment.	The inclusion of an acoustic fence / barrier to the south and east sides of the open tennis courts will be included to reduce noise from the tennis courts. Details of the fence / barrier are to be provided and secured by a planning condition. Wood have subsequently agreed.
Suitability Assessment - No calculations showing how glazing and ventilation specification derived. Pre-occupation condition for a schedule of sample internal ambient noise measurements for day, night and match day conditions to demonstrate compliance with design criteria.	The reference to 'match day conditions' in the recommendation is evidently an error. There is a recommended condition for pre-occupation testing of indoor ambient noise levels. An alternative is to condition a pre-commencement submission, detailing the developed scheme of sound insulation measures that demonstrate compliance with the internal noise levels recommended in BS 8233, as typically required by the local authority. This would allow any remaining concerns to be addressed when design revisions are more practical. Wood have acknowledged that the reference to match day conditions is an error. Wood have recommended that internal levels are tested prior to occupation. Given that the assessment is not complex and that the margin of error is more controllable, it is feasible that internal levels can be dealt with by planning condition).
Construction activity noise - No construction assessment has been undertaken. Revisit calculations when preparing CEMP. More robust predictions needed. Consider whether s61s COPA 74 should be required for key construction/demolition activity.	As stated in the EIA Scoping Report and agreed by WBC in their Scoping Opinion: "*The likely noise sources are associated with the demolition and construction activities on-site, and demolition and construction traffic on surrounding roads. During the works, noise and vibration related to demolition and construction activities will be controlled to limit noise emissions. 'Best Practicable Means' will be used to control and reduce levels in accordance with a Section 61 application of the Control of Pollution Act.* *In addition, a demolition and / or construction logistics plan will be implemented, to ensure that vehicle movements are appropriately managed e.g. deliveries are appropriately staggered. It is, therefore, considered that noise effects associated with the demolition and construction of the Proposed Development can be adequately controlled so that no significant effects would be likely".* Wood have subsequently agreed that the proposal (i.e. the Proposed Development) is considered appropriate.

Road Traffic - No road traffic assessment has been undertaken. Consideration of noise effects on school receptors.	Road traffic noise was scoped out of the noise assessment, as agreed by WBC in their Scoping Opinion. The EIA Scoping Report stated: *"Operational noise arising from traffic has the potential to result in changes in noise at the existing nearby residents. The Proposed Development does not have the potential to generate any significant effects on the transport network. On this basis no significant effects are expected due to traffic introduced with the Proposed Development."* Wood have subsequently agreed that the proposal (i.e. the Proposed Development) is considered appropriate (see Appendix B – further response).
RPS - Woking Council – Lighting Report Assessment for Planning Application PLAN/2019/1177 (Appendix C – Initial and final response)	
STANDALONE LIGHTING ASSESSMENT	
Clarifications	
Further evidence is required to demonstrate that there will be no obtrusive light received by the properties off Hook Hill Lane which adjoin the area of the proposed new tennis courts. Lighting calculations should be provided that show compliance with Table 2 of the Institute of Lighting Professionals Guidance Notes for the Reduction of Obtrusive Light GN01:2011 for the following: • Sky glow – upward light ratio of the installation. • Light intrusion into windows – vertical illuminance in Lux measured flat on the glazing at the centre of the window. • Luminaire intensity – of the luminaires in the potentially obtrusive direction, outside of the area being lit.	Floodlighting is not proposed as part of the planning application. Should floodlighting be proposed at a later date the following planning condition is suggested: *Evidence will be provided to show that the external lighting design is in line with recommendations with the Guidance Notes for the reduction of Obtrusive Light GN01:2011 for Environmental Zone E3, with regards to sky glow, light intrusion into residential windows and luminaire intensity.* RPS and WBC have subsequently agreed that this condition is considered appropriate, if at all required, and have no further comment. See Appendix C initial and final response).
Surrey Wildlife Trust – Email from Heather Lewis (14 February 2020) – Ecology (Appendix D)	

GENERAL	
Clarifications	
The development as proposed will result in the felling of a substantial number of trees, at least one quarter of the total area of woodland currently present on site. The development is also proposed to immediately abut retained woodland with little or no semi-natural buffer to the woodland. Built development in such close proximity to the woodland is expected to result in further deterioration of retained woodland. The development as proposed is therefore expected to result in direct loss and deterioration of the deciduous woodland present on site. This woodland habitat is identified by Natural England as deciduous Woodland of Principal Importance for the purpose of conserving biodiversity in England, in line with the provisions of Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006. Section 40 of the NERC Act puts a duty on the Council to conserve biodiversity during the planning function, and clarifies 'conserving biodiversity' to mean 'restoring a habitat'. The developer does not present information relating to how this loss and deterioration will be avoided or mitigated for within the design of the development. The loss of woodland habitat as proposed, would therefore be contrary to the statutory objectives of the NERC Act.	**Deterioration of retained woodland** The Surrey Wildlife Trust (SWT) highlighted that approximately 25% of the existing woodland on-site is due to be lost as a result of the Proposed Development, as reported in Chapter 7: Ecology of the Environmental Statement. The SWT raised concerns that the Proposed Development would about the retained woodland, which could result in further deterioration. During the Phase 1 habitat survey and arboricultural surveys, the woodland was found to be of poor quality and, as a result, the loss of 25% was not considered to be a significant adverse effect, with the vast majority of it being retained. In order to mitigate potential recreational impacts during operation, it has been proposed to restrict access into the woodland by planting dense scrub including thorny species, such as hawthorn and blackthorn, along the margins of the woodland associated with fencing along the Proposed Development's boundary. This planting will be detailed in a LEMP, as per Chapter 7: Ecology of the Environmental Statement. **Removal of priority habitat** The SWT raised a concern that the woodland on the site is shown as deciduous woodland, a priority habitat under the NERC Act 2006, on DEFRA's MAGIC map, and that the removal of this woodland would therefore be contrary to the provisions of the NERC Act 2006. It was acknowledged that the woodland is shown as deciduous woodland at an early stage of the ecological assessment process. However, when the site was surveyed by ecologists and arboriculturists from The Ecology Consultancy, it was found that the trees within the woodland were all less than 50 years old and were likely to have been planted, given that they contained a number of non-native species and are located adjacent to a nursery. The woodland was therefore classified as plantation woodland, which is not a priority habitat and is therefore not a material consideration for planning. The woodland, the majority of which is being retained, is considered to be of relatively low ecological quality, being less than 50 years old and with a proportion of non-native species.
Above referenced landscaping plan submitted in support of this application presents very limited opportunities for planting and does not convincingly provide adequate mitigation for the larger woodland blocks to be lost to development. Technical survey reports submitted within the Technical Appendix of the Environmental Statement makes a series of	**Protected species** The SWT's response raised concerns that protected species are not appropriately protected as part of the Proposed Development. Protected species have been considered throughout the assessment process and further surveys for protected species have been undertaken to understand the ecological baseline. These include surveys for roosting bats, monthly surveys to evaluate bat activity on-site, a great crested newt survey and a reptile survey. Apart from breeding birds, no other protected species

recommendations for impact avoidance, mitigation and compensation measures with regards to a suite of protected species including bats, reptiles and breeding birds. These recommendations are not translated within the Landscaping Masterplan submitted. It is therefore not feasible to conclude that the proposed development will ensure protected species are appropriately protected in line with statutory obligations. The National Planning Policy Framework (NPPF) makes it clear (para 170) that "Planning policies and decisions should contribute to and enhance the natural and local environment by; minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures". Paragraph 174 requires the promotion of "the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity". The application as submitted does not provide sufficient appropriate ecological information to ensure that the proposed development will result in a net gain for biodiversity. As proposed the development appears to result in a net loss of protected Habitat of Principle Importance deciduous woodland and a suite of legally protected species. Granting planning permission for this development as proposed on the basis of currently available information is contrary to the policy objectives of the NPPF and the statutory obligations of the NERC Act	are considered likely to be present on-site and, therefore, no other surveys have been undertaken. Mitigation for these protected species groups has been committed to as follows: - **Bats** – any trees with potential to support roosting bats that must be removed to facilitate the Proposed Development will be removed in accordance with Bat Conservation Trust guidance. It is also proposed to install at least five bat boxes suitable for a variety of species and roost types is proposed and will be detailed in the LEMP, which it is suggested is conditioned. If a higher number is deemed to be required, then this can be committed to. - **Great crested newt** – HSI and eDNA survey for great crested newt was undertaken of all suitable waterbodies within 500m of the site (1 no.). Great crested newt was confirmed as being likely absent and therefore no mitigation for great crested newt has been proposed. - **Reptiles** – one common lizard was recorded on the boundary of the site, in only one out of seven survey visits. It was therefore considered that fencing, trapping and translocation would not be appropriate. Given that suitable habitat for reptiles associated with the railway exists adjacent to the small area of habitat found to support reptiles on-site, habitat manipulation to encourage reptiles into the adjacent suitable habitat was deemed to be appropriate mitigation. Regardless 1,520m^2 of wildflower meadow will be created on site over three areas. One of these areas, by far the largest, will be adjacent to the railway and would provide a foraging resource for reptiles post-construction. - **Breeding birds** – Standard mitigation for breeding birds in the form of timing any required tree or scrub clearance to be outside of the bird breeding season, or where unavoidable, following a check by a suitably qualified ecologist, has been proposed. This is considered to ensure that there would be no significant adverse effects on breeding birds. It has been proposed to install at least five bird boxes of various types within the woodland and ten boxes for house sparrow on new buildings. If a higher number or bird boxes for other target species is deemed to be required then this can be committed to. **Biodiversity net gain** The response from the SWT highlights that the NPPF states that *"Planning policies and decisions should contribute to and enhance the natural and local environment by; minimising impacts on and providing net gains for biodiversity"* and that the proposal has not evidenced net gain sufficiently. WBC's local policy does not currently have any requirement for biodiversity net gain. The NPPF does not make it an absolute requirement to achieve biodiversity net gain and biodiversity net gain is not currently considered to be a material consideration in the planning process. Therefore, it is not a strict requirement under legislation or planning policy.

and a suite of European and national protected species legislation. I strongly recommend that the applicant and their ecologist apply the DEFRA Net Gain metric to establish a current baseline figure for biodiversity value of the site and use this to identify appropriate impact avoidance and mitigation measures in order to demonstrate that the development will result in a net gain for protected habitats and species. Quantified evidence that a net gain in biodiversity is secured as a result of development should be submitted to the Council in writing for approval prior to the determination of the current application.	Chapter 7: Ecology of the Environmental Statement assessed potential ecological impacts and found that there would be no significant residual adverse effects on important ecological features. However, as part of the Proposed Development, it is proposed to plant new habitats as follows: - 1,520m^2 of wildflower planting; - 430m^2 of native hedge buffer planting; - 550m^2 of general hedge planting; - 140m^2 of grass planting (this does not include residential garden areas, which will be a significantly larger area, but there is no control over how residents manage the land in the future. Additional trees, scrub, flower beds and ponds are likely, providing a greater diversity of habitats, species and foraging resources); and - More than 50 new trees.
I also advise that the above referenced External Site Plan External Lighting Plan does not have appropriate regards to best practice guidance for avoidance of adverse impacts on European Protected nocturnal species.	**Lighting** Floodlighting is not proposed as part of the planning application; however, studies have been submitted to WBC to demonstrate that floodlighting would be possible, should planning be sought for this at a future date.
Suggested Wording of Proposed Conditions 1. Prior to the commencement of construction, including site clearance, a Construction Environmental Management Plan (CEMP) should be provided to and agreed by Woking Borough Council. The CEMP should detail biodiversity mitigation measures required on site during site clearance and construction including for reptiles, breeding birds and roosting bats. 2. Prior to the commencement of construction, including site clearance, a Landscape and Ecology Management Plan (LEMP) should be provided to and agreed by Woking Borough Council. The LEMP should detail specifications and locations of woodland buffer planting, bat boxes and bird boxes and should include a management regime for all retained and planted habitats for the benefit of biodiversity for at least the first five years after the commencement of the development.	

Appendix A: Technical note – Review of Air Quality Assessment: Application reference PLAN/2019/1177 (initial response)

Technical note – Review of Air Quality Assessment:
Application reference PLAN/2019/1177

1. Introduction

Wood Environment and Infrastructure Solutions UK Ltd (Wood) have prepared this Technical Note on behalf of Woking Borough Council (WBC) to provide a detailed review of the air quality assessment provided in Chapter 6 of the Environmental Statement (ES) produced in support of planning application PLAN/2019/1177 (Land South of Hoe Valley School and East of Railway tracks, Egley Road, Woking, Surrey, GU22 0NH). This air quality assessment was undertaken by Air Quality Consultants Ltd.

Egley Road Environmental Statement Non-Technical Summary, ES Chapter 6 Air Quality, ES Appendix 02 Air Quality and ES Chapter 10 Mitigation and Monitoring have been reviewed. The following methodological aspects have been considered and used to draw overall conclusions on the appropriateness of the assessment and robustness of conclusions:

- The assessment of dust from demolition and construction;
- Suitability of sensitive receptors, road links modelled, and assessment years chosen for determining potential for significant impact to air quality;
- Model verification methodology undertaken in line with Local Air Quality Management Technical Guidance (LAQM.TG(16))[1];
- Suitability of modelled scenarios and reliability of traffic data used for each;
- Selection of background pollutant concentrations and handling of future uncertainty with regard to air quality;
- Consideration of cumulative impacts; and
- Suitability and necessity of any mitigation measures proposed.

This review does not include consideration of the validity of traffic data provided for dispersion modelling in support of the air quality assessment.

2. Review of assessment methodology

2.1 Consideration of relevant policy and guidance

Annex 1 in Appendix 4 (Air Quality) comprehensively details the Environment Protection UK (EPUK) and Institute of Air Quality Management[2] (IAQM) guidance on air quality assessment, including what should be included and significance criteria. The air quality assessment methodology follows this guidance.

[1] Defra Technical Guidance LAQM.TG(16) https://laqm.defra.gov.uk/technical-guidance/
[2] Environment Protection UK (EPUK) & Institute of Air Quality Management (2017) Guidance on land-use planning and development control: Planning for Air Quality.

Annex 7 in Appendix 4 outlines the policy context, including national and local policy.

2.2 Construction phase

The assessment of effects from dust during demolition and construction has been undertaken in accordance with Institute of Air Quality Management (IAQM) Guidance[3]. The dust emission magnitude is considered to be small for demolition, large for earthworks, medium for construction, and medium for trackout. The measures in Section A6 of Appendix 2 are predicted to reduce effects such that residual effects from construction works would be 'not significant'. This is a standard approach and is considered to be appropriate.

In terms of impact to sensitive receptors from construction traffic, across the 4-year construction period the maximum Annual Average Daily Traffic (AADT) flow when considering the Proposed Development will generate a maximum of 26 Heavy Duty Vehicle (HDV) movements. On the basis that the HDVs will not be routed through any Air Quality Management Areas (AQMA), the need for detailed assessment of impacts was scoped out of the assessment as the number of HDVs is fewer than 100 AADT, which is the trigger for undertaking a detailed assessment. However, it is not clear in the ES Chapter whether the cumulative impact with the Kingfield Road proposed development has been considered in terms of construction traffic.

2.3 Suitability of sensitive receptors, road links modelled and assessment years chosen for determining potential significant impact to air quality

Sensitive receptors

Pollutant concentrations have been predicted at a number of existing sensitive receptors and receptors within the Proposed Development as detailed in Table 6.5 – 6.6 and Figures 6.1, 6.2 and 6.4.

The existing receptors include residential properties, schools and nurseries, in accordance with the guidance on identifying sensitive receptors provided in LAQM.TG(16). In addition, modelled receptors were chosen within AQMA 2, declared by WBC for exceedance of the annual mean NO_2 Air Quality Objective (AQO). The height at which receptors have been modelled has been altered depending on whether the receptors are likely to be children or adults, and if they are located at ground and first floor level; this is an appropriate approach.

Overall, the selected human receptors are considered to be appropriate to determine the effects of the Proposed Development on air quality.

Sensitive ecological receptors at Smart's and Prey Heath Site of Special Scientific Interest (SSSI) have been considered in Section 6.61 and a grid of receptors shown in Figure 6.3. It is noted that the ecological receptor grid has been modelled at a height of 1.5 m, which may need justification as the nitrogen sensitive species are likely to be heathland species which are lower to the ground. However, this is considered unlikely to affect the outcome of the results.

Assessment years

The David Lloyd Leisure Centre is scheduled to be completed in 2021, at which point the CHP and boiler units will be operational, as detailed in Section 6.31. With this in mind, concentrations of NO_2, PM_{10} and $PM_{2.5}$

[3] IAQM (2014) Guidance on the assessment of dust from demolition and construction

associated with traffic, diesel generators and gas-fired plant emissions have been predicted for the following scenarios:

- 2018 Baseline;
- 2021 Without Scheme; and
- 2021 With Egley Road Scheme.

The year 2021 is considered to be appropriate as this is when the energy plant at the David Lloyd Leisure Centre will become operational. This is considered to be a more conservative approach than using the completion year of the whole Proposed Development, which is predicted to be 2023, as pollution emissions and concentrations are predicted to fall year on year.

These scenarios align with the proposed phasing and are therefore considered to be appropriate to determine the effects of the Proposed Development on air quality.

2.4 Model verification methodology undertaken in line with Local Air Quality Management Technical Guidance (LAQM.TG(16))

As can be seen in Annex 3, verification of modelled NO_X and NO_2 concentrations has been undertaken in accordance with the guidance in LAQM.TG(16). Modelled NO_2 concentrations have been compared with concentrations monitored using diffusion tubes deployed by WBC: sites YR, YR1, LTK, CH, CH2, CH3 and CH4.

It is noted that five of these diffusion tubes are classified as 'kerbside' (i.e. within 1 m of the kerb). LAQM.TG(16) states that kerbside diffusion tubes are not recommended for the adjustment of road traffic modelling results as it may cause an over-adjustment, unless they are representative of the location of sensitive receptors. The selected diffusion tubes are not considered representative of sensitive receptors in the study area as most dwellings are 3 – 10 m from the kerb, however as there are few 'roadside' diffusion tubes available in the vicinity of the Proposed Development and using 'kerbside' sites is likely to result in an over-adjustment of results this approach is considered acceptable.

There is a lack of available monitoring data in the area for PM_{10} and $PM_{2.5}$ and the adjustment factor calculated for NO_2 has been used to adjust road traffic contribution to PM_{10} and $PM_{2.5}$ concentrations. This is a suitable approach.

Model verification is not undertaken for ADMS-5, so no adjustment factor was applied in line with industry practice.

2.5 Suitability of modelled scenarios and reliability of data used for each

NO_2, PM_{10} and $PM_{2.5}$ pollutants of concern relating to traffic, diesel generators and gas-fired plant emissions were modelled.

Farnborough meteorological station was used in modelling, which is considered to be representative of the development site.

As stated in A3.3 in Annex 3 of Appendix 2, traffic and speed data was provided by Vectos, Transport Consultants for the project. It is stated that some speeds were altered due to proximity to a junction or road layout using professional judgement. After review of the average speed on each modelled road link provided in Figure A3.1, this is considered an appropriate approach to more accurately predict the likely higher pollutant concentrations at receptors located at junctions.

Hook Hill Lane has not been modelled as part of the air quality assessment as the existing site access is not proposed to be used. The Design and Access Statement states that this access route may be used in the future for staff or service access. It is unlikely that this will result in an increase of 100 Heavy Duty Vehicles (HDV) per day, so is not likely to need to be remodelled in terms of air quality.

It is noted that Surrey County Council has made comments in a letter[4] by Abigail Solway, dated 7th February 2020, concerning assumptions made in the Transport Assessment produced by Vectos. If traffic data is revisited and altered, the change should be reviewed to determine whether it may impact the outcome of the air quality assessment.

With regard to plant emissions, a gas-fired Combined Heat and Power (CHP) unit and two boiler plant have been modelled using ADMS-5 using inputs provided in Table A3.3 in Annex 3 of Appendix 4. As a worst case it has been assumed that the CHP and boilers will be operational for 100% of the year at full load, which is an appropriately conservative approach. Building downwash effects were included in the model. In addition, energy plant specifications are included in Section A5 of Appendix 2. To ensure the final plant does not lead to impacts greater than those modelled, it is recommended that WBC use the specifications in this section as a benchmark and they should be referenced in planning conditions. If plant design changes from information in Table A5.1, modelling should be updated.

2.6 Selection of background pollutant concentrations and handling of future uncertainty with regard to air quality

Background pollutant concentrations have been obtained from the latest version of the Defra produced background maps (2017-based maps). The background NO_2 concentrations obtained from these maps were compared to concurrent monitoring data from national site to calculate a calibration factor applied to both baseline and future year background concentrations. As this has resulted in a slightly higher NO_2 background concentration for future years. This is a conservative approach and considered to be acceptable.

As part of the air quality assessment a sensitivity test was carried out, as detailed in section A3.6 in Annex 3. Due to the assumption made in calculating traffic emission factors provided in Defra's Emissions Factor Toolkit (EFT), mainly that diesel cars and vans registered after 2020 will emit significantly less, the CURED v3A tool has been used as an alternative to calculate emissions from vehicles in the future scenarios.

In addition, for use in the sensitivity test, NO_2 background concentrations have been calculated using the 2015-based Defra background maps with uplifted road-traffic components to use alongside the CURED 3A tool that was based on previous versions of Defra's tools.

Both the 'official' methodology and sensitivity test modelling results have been presented in the ES Chapter allowing for comparison.

2.7 Consideration of cumulative impacts

Chapter 6 of the ES does not detail whether cumulative impacts to air quality have been considered for the operational or construction phase assessments. Even though it is known that residential Block 1 of the Kingfield Road proposed development is due to be occupied in 2021, it is not clear whether traffic associated with this development has been considered. In addition, the construction phases of both developments overlap, so comment should be made on the potential for cumulative impacts from construction traffic.

[4]Surrey County Council (2020) Available at: https://caps.woking.gov.uk/online-applications/files/12CD292DB5961F024AC905C7F53AB668/pdf/PLAN_2019_1177-SCC_HIGHWAYS-693461.pdf

2.8 Suitability and necessity of any mitigation measures proposed

Appropriate air quality mitigation is listed in Chapter 10, including the use of air source heat pumps (ASHP) and actions to minimise dust from the construction phase. As there are not expected to be significant impact to air quality at sensitive human receptors, it is suitable to not have included mitigation measures to reduce emissions from road traffic.

3. Conclusions

Chapter 6 of the ES has concluded that there will be no significant impacts to existing or proposed sensitive human receptors during the construction or operational phases of the Proposed Development.

After independent review of Chapter 6, the following recommendation can be made:

- The cumulative impact of the Proposed Development and other developments in the vicinity (construction and operation), namely Kingfield Road, should be considered further in term of impact to air quality at sensitive human and ecological receptors;
- A Dust Management Plan (DMP) including the mitigation measures provided in Annex 6 of Appendix 3 should be produced and agreed by WBC;
- WBC should ensure ASHP are secured by condition or an alternative heating method should be assessed in terms of impact to air quality;
- Energy plant design should be submitted and agreed by WBC, ensuring that parameters do not exceed specifications modelled in the air quality assessment. In this instance, remodelling should be requested; and
- WBC should be mindful of the comments made by Surrey County Council regarding validity of predicted traffic flows as these were used in air quality modelling and have the potential to impact robustness of the air quality assessment.

Issued by

Signature here

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Lauren Buchanan

Approved by

Signature here

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Ben Warren

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Appendix A: Technical note – Review of Air Quality Assessment: Application reference PLAN/2019/1177 (final response)

Technical note – Review of Air Quality Assessment: Application reference PLAN/2019/1177

1. Introduction

Wood Environment and Infrastructure Solutions UK Ltd (Wood) have prepared this Technical Note on behalf of Woking Borough Council (WBC) to provide a detailed review of the air quality assessment provided in Chapter 6 of the Environmental Statement (ES) produced in support of planning application PLAN/2019/1177 (Land South of Hoe Valley School and East of Railway tracks, Egley Road, Woking, Surrey, GU22 0NH). This air quality assessment was undertaken by Air Quality Consultants Ltd.

Egley Road Environmental Statement Non-Technical Summary, ES Chapter 6 Air Quality, ES Appendix 02 Air Quality and ES Chapter 10 Mitigation and Monitoring have been reviewed. The following methodological aspects have been considered and used to draw overall conclusions on the appropriateness of the assessment and robustness of conclusions:

- The assessment of dust from demolition and construction;
- Suitability of sensitive receptors, road links modelled, and assessment years chosen for determining potential for significant impact to air quality;
- Model verification methodology undertaken in line with Local Air Quality Management Technical Guidance (LAQM.TG(16))[1];
- Suitability of modelled scenarios and reliability of traffic data used for each;
- Selection of background pollutant concentrations and handling of future uncertainty with regard to air quality;
- Consideration of cumulative impacts; and
- Suitability and necessity of any mitigation measures proposed.

This review does not include consideration of the validity of traffic data provided for dispersion modelling in support of the air quality assessment.

2. Review of assessment methodology

2.1 Consideration of relevant policy and guidance

Annex 1 in Appendix 4 (Air Quality) comprehensively details the Environment Protection UK (EPUK) and Institute of Air Quality Management[2] (IAQM) guidance on air quality assessment, including what should be included and significance criteria. The air quality assessment methodology follows this guidance.

[1] Defra Technical Guidance LAQM.TG(16) https://laqm.defra.gov.uk/technical-guidance/
[2] Environment Protection UK (EPUK) & Institute of Air Quality Management (2017) Guidance on land-use planning and development control: Planning for Air Quality.

Annex 7 in Appendix 4 outlines the policy context, including national and local policy.

2.2 Construction phase

The assessment of effects from dust during demolition and construction has been undertaken in accordance with Institute of Air Quality Management (IAQM) Guidance[3]. The dust emission magnitude is considered to be small for demolition, large for earthworks, medium for construction, and medium for trackout. The measures in Section A6 of Appendix 2 are predicted to reduce effects such that residual effects from construction works would be 'not significant'. This is a standard approach and is considered to be appropriate.

In terms of impact to sensitive receptors from construction traffic, across the 4-year construction period the maximum Annual Average Daily Traffic (AADT) flow when considering the Proposed Development will generate a maximum of 26 Heavy Duty Vehicle (HDV) movements. On the basis that the HDVs will not be routed through any Air Quality Management Areas (AQMA), the need for detailed assessment of impacts was scoped out of the assessment as the number of HDVs is fewer than 100 AADT, which is the trigger for undertaking a detailed assessment. The cumulative impact of construction traffic has been addressed in the planning application for Kingfield Road (PLAN/2019/1176).

2.3 Suitability of sensitive receptors, road links modelled and assessment years chosen for determining potential significant impact to air quality

Sensitive receptors

Pollutant concentrations have been predicted at a number of existing sensitive receptors and receptors within the Proposed Development as detailed in Table 6.5 – 6.6 and Figures 6.1, 6.2 and 6.4.

The existing receptors include residential properties, schools and nurseries, in accordance with the guidance on identifying sensitive receptors provided in LAQM.TG(16). In addition, modelled receptors were chosen within AQMA 2, declared by WBC for exceedance of the annual mean NO_2 Air Quality Objective (AQO). The height at which receptors have been modelled has been altered depending on whether the receptors are likely to be children or adults, and if they are located at ground and first floor level; this is an appropriate approach.

Overall, the selected human receptors are considered to be appropriate to determine the effects of the Proposed Development on air quality.

Sensitive ecological receptors at Smart's and Prey Heath Site of Special Scientific Interest (SSSI) have been considered in Section 6.61 and a grid of receptors shown in Figure 6.3. It is noted that the ecological receptor grid has been modelled at a height of 1.5 m, which may need justification as the nitrogen sensitive species are likely to be heathland species which are lower to the ground. However, this is considered unlikely to affect the outcome of the results.

Assessment years

The David Lloyd Leisure Centre is scheduled to be completed in 2021, at which point the CHP and boiler units will be operational, as detailed in Section 6.31. With this in mind, concentrations of NO_2, PM_{10} and $PM_{2.5}$

[3] IAQM (2014) Guidance on the assessment of dust from demolition and construction

associated with traffic, diesel generators and gas-fired plant emissions have been predicted for the following scenarios:

- 2018 Baseline;
- 2021 Without Scheme; and
- 2021 With Egley Road Scheme.

The year 2021 is considered to be appropriate as this is when the energy plant at the David Lloyd Leisure Centre will become operational. This is considered to be a more conservative approach than using the completion year of the whole Proposed Development, which is predicted to be 2023, as pollution emissions and concentrations are predicted to fall year on year.

These scenarios align with the proposed phasing and are therefore considered to be appropriate to determine the effects of the Proposed Development on air quality.

2.4 Model verification methodology undertaken in line with Local Air Quality Management Technical Guidance (LAQM.TG(16))

As can be seen in Annex 3, verification of modelled NO_X and NO_2 concentrations has been undertaken in accordance with the guidance in LAQM.TG(16). Modelled NO_2 concentrations have been compared with concentrations monitored using diffusion tubes deployed by WBC: sites YR, YR1, LTK, CH, CH2, CH3 and CH4.

It is noted that five of these diffusion tubes are classified as 'kerbside' (i.e. within 1 m of the kerb). LAQM.TG(16) states that kerbside diffusion tubes are not recommended for the adjustment of road traffic modelling results as it may cause an over-adjustment, unless they are representative of the location of sensitive receptors. The selected diffusion tubes are not considered representative of sensitive receptors in the study area as most dwellings are 3 – 10 m from the kerb, however as there are few 'roadside' diffusion tubes available in the vicinity of the Proposed Development and using 'kerbside' sites is likely to result in an over-adjustment of results this approach is considered acceptable.

There is a lack of available monitoring data in the area for PM_{10} and $PM_{2.5}$ and the adjustment factor calculated for NO_2 has been used to adjust road traffic contribution to PM_{10} and $PM_{2.5}$ concentrations. This is a suitable approach.

Model verification is not undertaken for ADMS-5, so no adjustment factor was applied in line with industry practice.

2.5 Suitability of modelled scenarios and reliability of data used for each

NO_2, PM_{10} and $PM_{2.5}$ pollutants of concern relating to traffic, diesel generators and gas-fired plant emissions were modelled.

Farnborough meteorological station was used in modelling, which is considered to be representative of the development site.

As stated in A3.3 in Annex 3 of Appendix 2, traffic and speed data was provided by Vectos, Transport Consultants for the project. It is stated that some speeds were altered due to proximity to a junction or road layout using professional judgement. After review of the average speed on each modelled road link provided in Figure A3.1, this is considered an appropriate approach to more accurately predict the likely higher pollutant concentrations at receptors located at junctions.

Hook Hill Lane has not been modelled as part of the air quality assessment as the existing site access is not proposed to be used. The Design and Access Statement states that this access route may be used in the future for staff or service access. It is unlikely that this will result in an increase of 100 Heavy Duty Vehicles (HDV) per day, so is not likely to need to be remodelled in terms of air quality.

It is noted that Surrey County Council has made comments in a letter[4] by Abigail Solway, dated 7th February 2020, concerning assumptions made in the Transport Assessment produced by Vectos. If traffic data is revisited and altered, the change should be reviewed to determine whether it may impact the outcome of the air quality assessment.

With regard to plant emissions, a gas-fired Combined Heat and Power (CHP) unit and two boiler plant have been modelled using ADMS-5 using inputs provided in Table A3.3 in Annex 3 of Appendix 4. As a worst case it has been assumed that the CHP and boilers will be operational for 100% of the year at full load, which is an appropriately conservative approach. Building downwash effects were included in the model. In addition, energy plant specifications are included in Section A5 of Appendix 2. To ensure the final plant does not lead to impacts greater than those modelled, it is recommended that WBC use the specifications in this section as a benchmark and they should be referenced in planning conditions. If plant design changes from information in Table A5.1, modelling should be updated.

2.6 Selection of background pollutant concentrations and handling of future uncertainty with regard to air quality

Background pollutant concentrations have been obtained from the latest version of the Defra produced background maps (2017-based maps). The background NO_2 concentrations obtained from these maps were compared to concurrent monitoring data from national site to calculate a calibration factor applied to both baseline and future year background concentrations. As this has resulted in a slightly higher NO_2 background concentration for future years. This is a conservative approach and considered to be acceptable.

As part of the air quality assessment a sensitivity test was carried out, as detailed in section A3.6 in Annex 3. Due to the assumption made in calculating traffic emission factors provided in Defra's Emissions Factor Toolkit (EFT), mainly that diesel cars and vans registered after 2020 will emit significantly less, the CURED v3A tool has been used as an alternative to calculate emissions from vehicles in the future scenarios.

In addition, for use in the sensitivity test, NO_2 background concentrations have been calculated using the 2015-based Defra background maps with uplifted road-traffic components to use alongside the CURED 3A tool that was based on previous versions of Defra's tools.

Both the 'official' methodology and sensitivity test modelling results have been presented in the ES Chapter allowing for comparison.

2.7 Consideration of cumulative impacts

Chapter 6 of the Egley Road ES does not detail whether cumulative impacts to air quality have been considered for the operational or construction phase assessments. However, cumulative impacts are addressed in the planning application for Kingfield Road, the methodology for which is considered to be appropriate.

[4]Surrey County Council (2020) Available at: https://caps.woking.gov.uk/online-applications/files/12CD292DB5961F024AC905C7F53AB668/pdf/PLAN_2019_1177-SCC_HIGHWAYS-693461.pdf

2.8 Suitability and necessity of any mitigation measures proposed

Appropriate air quality mitigation is listed in Chapter 10, including the use of air source heat pumps (ASHP) and actions to minimise dust from the construction phase. As there are not expected to be significant impact to air quality at sensitive human receptors, it is suitable to not have included mitigation measures to reduce emissions from road traffic.

3. Conclusions

Chapter 6 of the ES has concluded that there will be no significant impacts to existing or proposed sensitive human receptors during the construction or operational phases of the Proposed Development.

After independent review of Chapter 6, the following recommendation can be made:

- A Dust Management Plan (DMP) including the mitigation measures provided in Annex 6 of Appendix 3 should be produced and agreed by WBC;
- WBC should ensure ASHP are secured by condition or an alternative heating method should be assessed in terms of impact to air quality;
- Energy plant design should be submitted and agreed by WBC, ensuring that parameters do not exceed specifications modelled in the air quality assessment. In this instance, remodelling should be requested; and
- WBC should be mindful of the comments made by Surrey County Council regarding validity of predicted traffic flows as these were used in air quality modelling and have the potential to impact robustness of the air quality assessment.

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Lauren Buchanan

Approved by

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Ben Warren

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Appendix B: Technical note: Review of Noise Assessment – Planning Application 2019/1177 (initial response)

Technical note:
Review of Noise Assessment – Planning Application 2019/1177

1. Introduction

Woking Football Club & GolDev Woking have submitted application PLAN/2019/1177

"Redevelopment of site following demolition of existing building to provide health club building (Class D2) also incorporating external swimming pool, spa garden, terrace and tennis courts (including tennis court airdomes), provision of 36 dwelling houses (Class C3) up to a maximum of 3 storeys in height, vehicle parking, hard and soft landscaping, ancillary works including ancillary structures and fencing/gates and new vehicular access from existing road serving Hoe Valley School" for land south of Hoe Valley School And East Of Railway Tracks Egley Road, Woking, Surrey, GU22 0NH.

As part of the application, an Environmental Statement (ES) has been submitted – This technical report reviews the noise and vibration assessment (Annex 6) undertaken by Sandy Brown as part of the ES.

2. Noise and vibration assessment review

2.1 Survey

2.1.1 The vibration survey and noise survey to identify a background noise level are deemed appropriate. There is a lack of night-time noise survey on the east side of the site at the location of the proposed residences. It is therefore not possible to discern road traffic noise at this location. It is accepted that if the attended measured noise levels are representative of the daytime traffic noise levels, that the proposed 60 dB used for the ProPG would cover any night-time requirements at the measurement locations (i,.e. night-time traffic would not exceed an $L_{Aeq,\ 8\ hour}$ of 55 dB). However, it should be noted that the attended measurements would have been shielded from the A320 by the commercial premises and that 1st floor windows could experience higher noise levels during the night.

2.1.2 The survey of tennis noise source appears flawed. The unattended measurements have no detail of the number or court locations of matches played over the week while the meter was monitoring. As the measurement was made in early spring, it would normally be expected that club members engaged in racquet sports would be using the indoor courts in early spring. Therefore, there is a risk that tennis activity noise has been significantly underestimated at the proposed residential development compared to for instance July and August.

2.1.3 There is no description of the building services noise at the existing David Lloyd Club in terms of distance, character, noise levels, nor if it was operational throughout the night.

2.2 Assessment Criteria

2.2.1 Generally, the methods and guidance are considered appropriate, but there are some gaps in the implementation of methods which are discussed in the specific sections.

2.3 Plant Noise Limits and Assessment

2.3.1 It is uncertain where the building services plant noise limits originate from in Table 11 as they do not appear to relate to measured background noise levels. The limits also do not take account of the local authority limits (Policy D8) which would be 10 dB below background levels (most likely the identified background noise levels of 40 dB and 31 dB from the unattended measurement) as per 5.2.2.

2.3.2 It is acknowledged that often plant detail is not provided at the time of planning submission. However, given the proximity of the potential building services plant and existing residences and requirements to achieve 10 dB below the background it is considered that there is a risk to being able to achieve the limits, particularly as this was described as dominant during the source noise measurement at the existing tennis courts.

2.3.3 The proposed David Lloyd (DL) Club will have significant requirements for air handling plant as tennis courts are housed within 'Airdomes' and there is a gym, swimming pool and changing rooms; there will also need to be pumps for the indoor and external swimming pool. However, none of these appear to be considered within the assessment, with the survey of the existing club serving as a like-for-like comparison, although a review of the existing DL site shows that there are no airdomes, and the proposed site appears to be larger and therefore likely to be served by larger air handling plant.

2.3.4 The residential units are also to be served by air source heat pumps which are not mentioned in the noise assessment.

2.3.5 A detailed BS 4142 assessment will be required to confirm that the plant from the proposed leisure centre development (David Lloyd Club) and building services serving the new residential development will not impact new and existing residential receptors.

2.4 David Lloyd Ingress

2.4.1 It is not clear based on the calculations of noise attenuation with distance or assumptions used for the tennis courts how the resultant noise level of 52 dB has been predicted. Along with the potential issues with survey data described above in 2.2 there is a risk that the noise effect at the nearest residence is underpredicted. The assessment also refers to building services plant, but it is not clear how this has been integrated into the assessment.

2.4.2 The report states that the proposed club will have the operation as the Westfield Avenue Woking club used for the noise source survey which starts operating at 06:00 on weekdays. It is noted that the assessment specifically states the proposed club operating in daytime hours only. As BS 4142:2014 defines daytime as the time between 07:00 and 23:00, an additional night-time assessment covering the period from 6 am to 7 am would be required if the club is to operate between these times.

2.5 Residential acoustic design statement

2.5.1 The notes for the unattended measurement at the west side of the site has identified up forklift movement at Anglian Home Improvements approximately 120 metres distance. The noise levels at the time of identifying the forklift truck as a dominant source at Position 3 is an $L_{Aeq, 5\ mins}$ of 60 dB and 57 dB. This would suggest that an assessment of the commercial noise to BS4142 should be undertaken, however this is absent. It is assumed that there were no significant building services plant noise (especially at night when this might be apparent once road traffic noise had lowered) emanating from either of the neighbouring commercial premises, but this should be confirmed by Sandy Brown.

2.5.2 The assessment of school noise is covered by the use of a previous noise assessment for the school (*Environmental Statement Addendum – Hoe Valley School and Leisure Centre,* August 2015), However, given that the noise from children is identified both at the unattended location and position 1 at a distance from the premises, it would be expected to have been provided more detail as to the noise levels from this source. Wood plc do not have access to the ES addendum referred to and therefore cannot make comment on the appropriateness of using the previous noise assessment for this application.

2.5.3 The height of the fence proposed back garden fences should be defined in order to provide the suggested the sound reductions attributable to the garden area.

2.5.4 An $R_{w, Ctr}$ level has been identified for glazing to achieve target internal noise limits, however, it is not clear how this has been calculated. Further information should be provided on the calculation methodology.

2.6 Other considerations

2.6.1 Construction noise and road traffic noise have not been assessed. Whilst road traffic noise levels are unlikely to be significant; the effect on the school should be considered given the ambient noise levels are likely to be low at the southern façade of the school building.

2.6.2 The construction of the proposed buildings could result in disturbance to both existing residential and school receptors, particularly from any piling requirements. An assessment should be undertaken using BS 5228-1:2009+A1:2014 'Code of practice for noise and vibration control on construction and open sites. Noise'. An assessment of potential vibration effects should also be undertaken in the event of foundations requiring impact piling.

3. Recommendations

Table 3.1 Table of recommendations

Item	Issue	Recommended action
Plant Noise Limits	Limits do not appear to relate to measured levels in relation to local authority policy requirements.	Planning condition to be applied based on the measured levels. It is considered that 10 dB below the background of 31 dB during the night-time if relevant would be unnecessary. A Rating Limit of 30 dB is suggested.

Item	Issue	Recommended action
Commercial Noise Assessment	No BS 4142 assessment has been undertaken for new or existing residential receptors.	A BS 4142 assessment for all new and existing residential receptors to demonstrate that commercial noise at these locations will not be significant. The assessment should also include the hour between 6 am and 7 am.
Tennis Noise	Noise from tennis courts potentially unpredicted at existing residences.	Either an updated survey should be undertaken with attended measurements of tennis games or a more robust prediction method should be utilised to ensure peak court use is evaluated for the noise assessment.
Suitability Assessment	No calculations showing how glazing and ventilation specification derived.	Pre-occupation condition for a schedule of sample internal ambient noise measurements for day, night and match day conditions to demonstrate compliance with design criteria.
Construction activity noise	No construction assessment has been undertaken.	Revisit calculations when preparing CEMP. More robust predictions needed. Consider whether s61s COPA 74 should be required for key construction/demolition activity.
Road Traffic	No road traffic assessment has been undertaken.	Consideration of noise effects on school receptors.

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Mark Evans

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Giles Hine

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Appendix B: Technical note: Review of Noise Assessment – Planning Application 2019/1177 (further response)

Technical note:
Planning Application PLAN/2019/1177 – Noise consultant response to comments

1. Sandy Brown response

Plant noise limits

The plant noise limits are set equal to background based on the BS 4142: 2014. The measured free-field noise levels have been corrected by 3 dB to account for the facade effect where they apply. It is expected that plant noise limits would be conditioned. The recommended limit of a rating level of L_{ATr} 30 dB is appropriate for the night-time given the local authority requirements. A daytime limit of L_{ATr} 33 dB would be appropriate.

Wood response

Proposal considered appropriate and no additional comment.

2. Sandy Brown response

Commercial noise assessment

While BS 4142 can be used to assess commercial noise at new residential developments, there is no requirement to do so and this is not understood to be local authority policy. The assessment has been based on controlling the various measured ambient noise levels to achieve the internal noise levels referenced in ProPG and BS 8233. The leisure centre noise impact was assessed based on operation from 07:00 only. If it does operate from 06:00, the night time noise levels will need considering. Compliance with the BS 8233 internal noise levels could be secured through condition.

Wood response

Commercial noise at the new residences should be assessed using BS4142:2014+A1:2019 in all but extenuating circumstances. Delivery noise and air handling plant noise fall within the scope of BS4142 and should be assessed accordingly.

It is expected that there will be some operational plant between 23:00 and 7:00. The consultants should check this with their client.

3. Sandy Brown response

Tennis noise

As the long-term noise survey was unattended it cannot be stated with certainty what happened during the unattended portions of the survey. It is identified in the report that the use of the tennis courts was observed during the attended portions of the survey so measured noise levels do include the influence of noise from some tennis matches. Measurements were taken over an 8-day period to capture a dataset that was robust as possible at the time of the survey.

A requirement for a further noise assessment could be conditioned if there are concerns that the noise levels from the tennis use is materially underestimated.

Wood Response

Due to the proximity of the tennis courts to the existing residences, this response is inadequate. If granted and the levels are materially underestimated, then there will be little that can be done to reduce the noise.

It is difficult for the consultant to assert that the dataset is robust due to the duration of measurement, when they have not undertaken any meaningful assessment of tennis noise.

The impulsive nature of tennis balls against surface and racquets would cause the noise to be more intrusive than a constant noise source. Furthermore no discussion of raised voices during games has been undertaken.

It is recommended that a more detailed assessment of tennis noise is undertaken before the planning application can be determined due to the potential material impact upon amenity of the existing housing adjacent to the planned tennis courts

4. Sandy Brown response

Suitability assessment

The reference to 'match day conditions' in the recommendation is evidently an error.

There is a recommended condition for pre-occupation testing of indoor ambient noise levels. An alternative is to condition a pre-commencement submission detailing the developed scheme of sound insulation measures that demonstrate compliance with the internal noise levels recommended in BS 8233, as typically required by the local authority.

This would allow any remaining concerns to be addressed when design revisions are more practical.

Wood response

The reference to match day conditions is an error. Apologies for this.

It is still recommended that internal levels are tested prior to occupation, however, compared with application 1176, the complexity of the assessment is lower so the margin of error is more controllable and as such, it is feasible that internal levels can be dealt with in the way suggested.

5. Sandy Brown response

Construction activity noise

As stated in the ES Scoping Report and agreed by Woking Council in their Scoping Opinion:

"The likely noise sources are associated with the demolition and construction activities on-site, and demolition and construction traffic on surrounding roads. During the works, noise and vibration related to demolition and construction activities will be controlled to limit noise emissions. 'Best Practicable Means' will be used to control and reduce levels in accordance with a Section 61 application of the Control of Pollution Act.

In addition, a demolition and / or construction logistics plan will be implemented, to ensure that vehicle movements are appropriately managed e.g. deliveries are appropriately staggered. It is, therefore, considered that noise effects associated with the demolition and construction of the Proposed Development can be adequately controlled so that no significant effects would be likely".

Wood response

Proposal considered appropriate and no additional comment.

6. Sandy Brown response

Road Traffic

Road traffic noise was scoped out of the noise assessment and agreed by Woking Council in their Scoping Opinion. The ES Scoping reported stated:

"Operational noise arising from traffic has the potential to result in changes in noise at the existing nearby residents. The Proposed Development does not have the potential to generate any significant effects on the transport network. On this basis no significant effects are expected due to traffic introduced with the Proposed Development."

Wood response

Proposal considered appropriate and no additional comment.

Issued by	Approved by
Signature here	Signature here
.....	.....
Giles Hine	**Jo Webb**

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Appendix C: Woking Council – Lighting Report Assessment for Planning Application PLAN/2019/1177 (initial response)

Project	Woking Council – Lighting Report Assessment for Planning Application PLAN/2019/1177
Scope:	Review of Lighting Assessment proposals
Client:	Wood Environment and Infrastructure Solutions UK for Woking Council.
Date:	5th March 2020

1. Introduction

This report assesses the lighting proposals issued for the following planning application:

Item	Description
Application Reference	PLAN/2019/1177
Application Type:	Full Planning Application
Proposal Summary:	Redevelopment of site following demolition of existing building to provide health club, pool, spa, tennis courts and provision for 36 dwelling houses up to a maximum of 3 stories in height.
Location:	Land South of Hoe Valley School and East of Railway tracks, Egley Road, Woking, Surrey, GU22 0NH.

The review considers the supporting documentation provided, to check that adverse conditions are not experienced by either existing residential or commercial neighbours and those properties which are to be introduced as a result of the scheme.

2. Documents review

The following documents form the basis of this review:

1. Trium report Environmental Statement non-technical summary
2. Elementa 510121.000 Egley road, Woking Sustainability strategy report November 2019
3. Leach Rhodes Walker drawing 7884-L(00)344B
4. ELM Building Services Ltd - LS2020-1 Rev A – Lighting Calculations
5. ELM Building Services Ltd - N0039/E/200 Site Plan External lighting

RPS Consulting Services, 20 Farringdon Street, London, EC4A 4BL

3. Basis of review

The documentary evidence provided has been assessed to determine if that appropriate controls will be in place as result of the designed lighting schemes.

The review assesses the evidence provided against the following criteria:

- **Daylight** into dwelling as per the:
    - Building Research Establishment report 'Site Layout Planning for Daylight and Sunlight (2011) recommendations
    - Woking Borough Council core strategy (2012) Policy CS21: design which states
        - *Achieve a satisfactory relationship to adjoining properties avoiding significant harmful impact in terms of loss of privacy, daylight or sunlight, or an overbearing effect due to bulk, proximity or outlook.*
        - *Be designed to avoid significant harm to the environment and general amenity, resulting from noise, dust, vibrations, light or other releases.*

- **Lighting Pollution** as E3 zone derived from the Institute of Lighting Professionals Guidance Notes for the Reduction of Obtrusive Light GN01:2011

  Extracts from the document are provided below:

Table 1 – Environmental Zones

Zone	Surrounding	Lighting Environment	Examples
E3	Suburban	Medium district brightness	Small town centres or suburban locations

Table 2 – Obtrusive Light Limitations for Exterior Lighting Installations – General Observers

Environmental Zone	Sky Glow ULR [Max %][1]	Light Intrusion (into Windows) E_v [lux] [2]		Luminaire Intensity I [candelas] [3]		Building Luminance Pre-curfew [4]
		Pre-curfew	Post-curfew	Pre-curfew	Post-curfew	Average, L [cd/m^2]
E0	0	0	0	0	0	0
E1	0	2	0 (1*)	2,500	0	0
E2	2.5	5	1	7,500	500	5
E3	5.0	10	2	10,000	1,000	10
E4	15	25	5	25,000	2,500	25

4. Findings

Commentary is provided on each of the four documents made available on the planning portal.

4.1 Trium report Environmental Statement non-technical summary

The report includes the following statement:

> This process was informed by further studies and desk-based assessments where relevant. Topics excluded from the Environmental Impact Assessment included:
>
> - Aviation;
> - Archaeology (Buried Heritage);
> - Built Heritage;
> - Daylight, Sunlight and Overshadowing, Light Pollution and Solar Glare;

There is no other reference to daylight or lighting pollution in the document.

4.2 Elementa 510121.000 Egley road, Woking Sustainability strategy report November 2019

The document makes the following comments:

Clause 5.2.1 Wellbeing

The buildings for the proposed development are to be designed to fully benefit from daylight and views. Room proportions, internal layouts, and fenestration location are driven by the desire for comfortable internal spaces.

Environmental analysis has been used by the design team to inform the design of homes and internal spaces. The requirements for daylight from fenestration, the design team have been conscious to balance these needs with that of avoiding overheating risk - today and in the future. Design evolution of the façade design will continue to evolve during next work stages, continuing to look for opportunities to provide passive design responses to the development.

However the report does not evidence how this will be achieved.

4.3 Leach Rhodes Walker 7884-L(00)344B

The drawing indicates an arrangement of houses and apartments which indicate compliance with the Building Research Establishment report 'Site Layout Planning for Daylight and Sunlight (2011) recommendations.

Rooms have access to daylight and there will be limited or minimal overshadowing as a result of adjacent properties, balconies, or protruding building extensions.

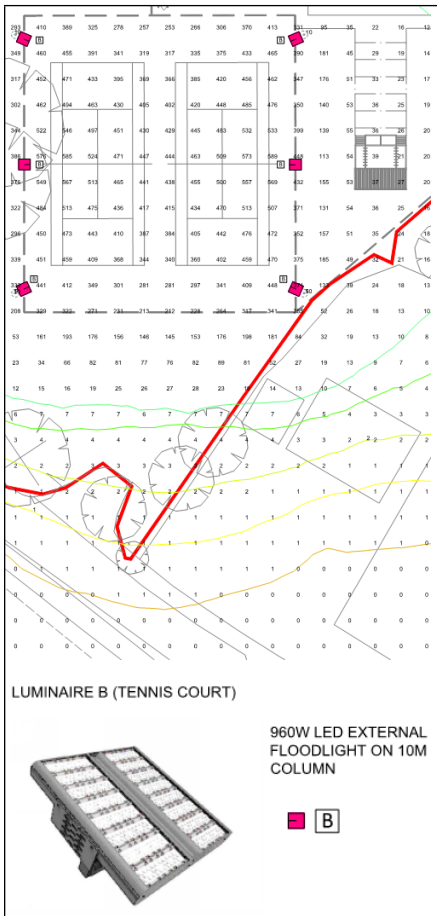
4.4 ELM Building Services Ltd - LS2020-1 Rev A – Lighting Calculations and ELM Building Services Ltd - N0039/E/200 Site Plan External lighting

The drawing and supporting drawings indicate that there is floodlighting to the tennis courts, which are in close proximity to adjacent properties.

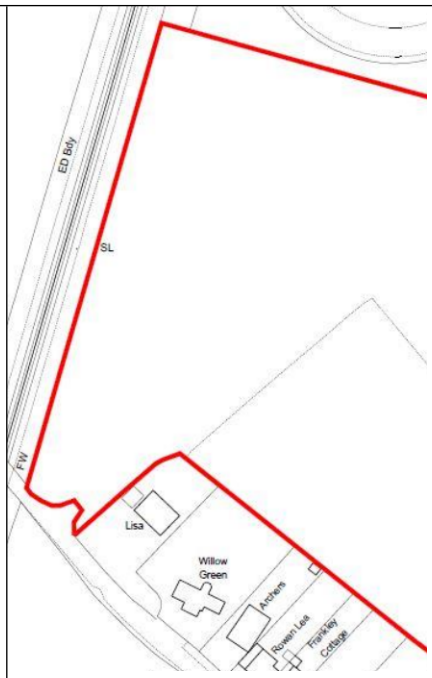
Lighting plots are provided which show lux levels on the floor however there are no lighting calculations that indicate the following related to reduction of obtrusive light in accordance with Table 2 of the Institute of Lighting Professionals Guidance Notes for the Reduction of Obtrusive Light GN01:2011 for the following:

- Sky glow – *upward light ratio of the installation.*
- Light intrusion into windows – *vertical illuminance in Lux measured flat on the glazing at the centre of the window.*
- Luminaire intensity – *of the luminaires in the potentially obtrusive direction, outside of the area being lit.*
- Building luminance – *buildings directly illuminated as a night-time feature.*
    - Not relevant for this assessment as no feature lit buildings are in the area of interest.

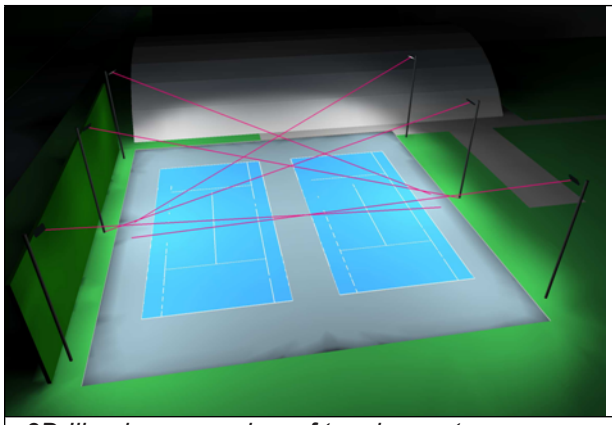
The images below indicate that the adjoining properties of Lisa, Willow Green and Archers could be affected by obtrusive light from the tennis court floodlighting.



Proximity of tennis courts to residences



Residences to the south of the site (image is taken from Figure 2 of the Trium report Environmental Statement non-technical summary



3D Illuminance review of tennis courts

Extract from aerial view

A view of an aerial view from Google Maps indicates that there may be shading afforded from established trees or shrubs on the boundary proximity.

5. Recommendations

Further evidence is required to demonstrate that there is will be no obtrusive light received by the properties off Hook Hill Lane which adjoin the area of the proposed new tennis courts.

Lighting calculations should be provided that show compliance with Table 2 of the Institute of Lighting Professionals Guidance Notes for the Reduction of Obtrusive Light GN01:2011 for the following:

- Sky glow – *upward light ratio of the installation.*
- Light intrusion into windows – *vertical illuminance in Lux measured flat on the glazing at the centre of the window.*
- Luminaire intensity – *of the luminaires in the potentially obtrusive direction, outside of the area being lit.*

Appendix C: Woking Council – Lighting Report Assessment for Planning Application PLAN/2019/1177 (final response)

Benjamin Bailey

Subject: Woking FC applications - 19/1176 and 19/1177 – Lighting

Switch-MessageId: ed3c8afefa504d50b5a0ec72fc229d2b

From: Simon Bourke
Sent: 26 March 2020 15:46
To: Buchanan, Lauren
Subject: Woking FC applications - 19/1176 and 19/1177 – Lighting

Lauren

We have now review the comments in the email below and the attachments. We have the following comments:

Response document	Response	RPS comment
eb7 4th Floor Holborn Tower 137-144 High Holborn London WC1V 6PL T: +44(0)20 7148 6290 E: info@eb7.co.uk W: www.eb7.co.uk Nigel Dexter Savills 33 Margaret Street London W1G 0JD 19 March 2020 Dear Nigel, **Subject: Woking Football Club (PLAN/2019/1176) – Response to review of lighting assessment (14th March 2020)**	Having spoken to the author of the review, we are aware that the first point relating to daylight and sunlight was included in error and should be removed. A full assessment of daylight within the scheme has been provided and this was reviewed by RPS in their document. In order to ensure that these other effects are fully addressed, we suggest the following planning condition: *Evidence will be provided to show that the final detailed external lighting design (including floodlighting, external walkway, car parks, amenity lighting and building façade lighting) is in line with recommendations within the Guidance Notes for the reduction of Obtrusive Light GN01:2011 for Environmental Zone E3, with regards to sky glow, light intrusion into residential windows and luminaire intensity.*	We consider their response suggested as a Planning Condition is appropriate. *Note:* *In the future there will be a requirement to assess that the evidence provided complies*

eb7 4th Floor Holborn Tower 137-144 High Holborn London WC1V 6PL T: +44(0)20 7148 6290 E: info@eb7.co.uk W: www.eb7.co.uk Nigel Dexter Savills 33 Margaret Street London W1G 0JD 19 March 2020 Dear Nigel, **Re: Subject: Egeley Road (PLAN/2019/1177) – Response to review of lighting assessment (5th March 2020)**	*Further evidence is required to demonstrate that there is will be no obtrusive light received by the properties off Hook Hill Lane which adjoin the area of the proposed new tennis courts.* *Lighting calculations should be provided that show compliance with Table 2 of the Institute of Lighting Professionals Guidance Notes for the Reduction of Obtrusive Light GN01:2011 for the following:* • *Sky glow – upward light ratio of the installation.* • *Light intrusion into windows – vertical illuminance in Lux measured flat on the glazing at the centre of the window.* • *Luminaire intensity – of the luminaires in the potentially obtrusive direction, outside of the area being lit.* In order to ensure that these effects are fully addressed, we suggest the following planning condition: *Evidence will be provided to show that the external lighting design is in line with recommendations with the Guidance Notes for the reduction of Obtrusive Light GN01:2011 for Environmental Zone E3, with regards to sky glow, light intrusion into residential windows and luminaire intensity.*	We consider their response suggested as a Planning Condition is appropriate. *Note:* *In the future there will be a requirement to assess that the evidence provided complies*

Simon Bourke
Operational Director - Building Services
RPS | Consulting UK & Ireland
M +44 7920 831953
E simon.bourke@rpsgroup.com

Appendix D: Surrey Wildlife Trust - PLAN/2019/1177 Land South of Hoe Valley School -East Egley Road

Benjamin Bailey

Subject: PLAN/2019/1177 Land South Of Hoe Valley School -East Egley Road

Switch-MessageId: 150e17b0d41040b199e68987451eff59

From: Heather Lewis
Sent: 14 February 2020 11:52
To: Benjamin Bailey
Subject: PLAN/2019/1177 Land South Of Hoe Valley School -East Egley Road

Dear Mr. Bailey,

PLAN/2019/1177
Redevelopment of site following demolition of existing building to provide health club building (Class D2) also incorporating external swimming pool, spa garden, terrace and tennis courts (including tennis court airdomes), provision of 36 dwelling houses (Class C3) up to a maximum of 3 storeys in height, vehicle parking, hard and soft landscaping, ancillary works including ancillary structures and fencing/gates and new vehicular access from existing road serving Hoe Valley School (Environmental Statement submitted)
Land South Of Hoe Valley School And East Of Railway Tracks Egley Road Woking Surrey GU22 0NH

Thank you for consulting the Surrey Wildlife Trust within regards to the above referenced planning application. Having reviewed the documentation submitted and consulted our records, we have the following comments and recommendations;

I note that the following ecological documents have been submitted in support of the above referenced application; 'Environmental Statement Chapter 7; Ecology' and supporting survey information submitted in 'Technical Appendix Ecology', Trium Environmental Consulting LLP, dated November 2019;
Plan titled 'External Site Plan External Lighting Plan', author Elm Building Services Engineers Ltd, dated 10 Jan 2020, drawing ref N0039/E/200 Rev A;
Plan titled 'Landscape Masterplan', author ARC Landscape Design and Planning Ltd, dated 22nd November 2019, drawing no. A241-ER-LA01; and
'Arboricultural Impact Assessment. Dated author Ecology Consultancy, dated 20 November 2019.

<u>Demonstrate a net gain in biodiversity</u>
The development as proposed will result in the felling of a substantial number of trees, at least 0ne quarter of the total area of woodland currently present on site. The development is also proposed to immediately abut retained woodland with little or no semi-natural buffer to the woodland. Built development in such close proximity to the woodland is expected to result in further deterioration of retained woodland. The development as proposed is therefore expected to result in direct loss and deterioration of the deciduous woodland present on site.

This woodland habitat is identified by Natural England as deciduous Woodland of Principal Importance for the purpose of conserving biodiversity in England, in line with the provisions of Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006.
Section 40 of the NERC Act puts a duty on the Council to conserve biodiversity during the planning function, and clarifies 'conserving biodiversity' to mean 'restoring a habitat'.
The developer does not present information relating to how this loss and deterioration will be avoided or mitigated for within the design of the development. **The loss of woodland habitat as proposed, would therefore be contrary to the statutory objectives of the NERC Act.**

Above referenced landscaping plan submitted in support of this application presents very limited opportunities for planting and does not convincingly provide adequate mitigation for the larger woodland blocks to be lost to development. Technical survey reports submitted within the Technical Appendix of the Environmental Statement makes a series of recommendations for impact avoidance, mitigation and compensation measures with regards to a

suite of protected species including bats, reptiles and breeding birds. These recommendations are not translated within the Landscaping Masterplan submitted. **It is therefore not feasible to conclude that the proposed development will ensure protected species are appropriately protected in line with statutory obligations.**

The National Planning Policy Framework (NPPF) makes it clear (para 170) that "Planning policies and decisions should contribute to and enhance the natural and local environment by; minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures".
Paragraph 174 requires the promotion of "the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measureable net gains for biodiversity".

The application as submitted does not provide sufficient appropriate ecological information to ensure that the proposed development will result in a net gain for biodiversity. As proposed the development appears to result in a net loss of protected Habitat of Principle Importance deciduous woodland and a suite of legally protected species.

Granting planning permission for this development as proposed on the basis of currently available information is contrary to the policy objectives of the NPPF and the statutory obligations of the NERC Act and a suite of European and national protected species legislation.
I strongly recommend that the applicant and their ecologist apply the DEFRA Net Gain metric to establish a current baseline figure for biodiversity value of the site and use this to identify appropriate impact avoidance and mitigation measures in order to demonstrate that the development will result in a net gain for protected habitats and species. Quantified evidence that a net gain in biodiversity is secured as a result of development should be submitted to the Council in writing for approval prior to the determination of the current application.

I also advise that the above referenced External Site Plan External Lighting Plan does not have appropriate regards to best practice guidance for avoidance of adverse impacts on European Protected nocturnal species.

We look forward to receiving further formal consultation requests from Woking Borough Council following submission by the applicant of the above referenced supporting information.

Regards,

Heather Lewis BSc (Hons), MSc
Conservation Manager, Planning.

Tel; 01483 795472

I work part time hours Monday to Friday 9am to 3pm.

Appendix E: Surrey County Council Highways Response Technical Notes and Supporting Information

Egley Road

Egley Road SCC Highways Response Technical Note

09/03/2020

183923A/N02-V0c

Introduction

1. This Technical Note (TN) has been prepared by Vectos on behalf of Woking Football Club to respond to the transport comments made by Surrey County Council (SCC) regarding the Egley Road planning application WO/19/1177.

2. The development proposal, known as 'Egley Road', includes the redevelopment of the site, following the demolition of the existing building, to provide a health club building (Class D2) incorporating an external swimming pool and tennis/sports courts, the provision of 36 dwelling houses (Class C3) up to a maximum of 3 storeys in height, associated landscaping and car parking and new vehicular access from an existing road serving Hoe Valley School.

3. A copy of SCC's response comments received on 05/03/2020 is included at **Appendix A**.

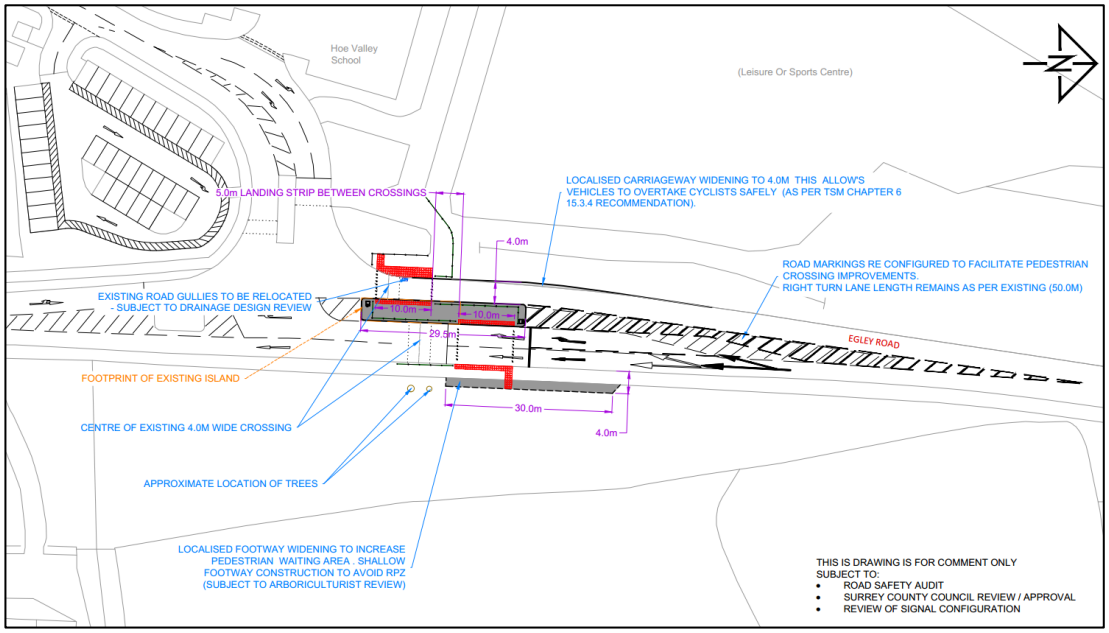
4. This TN addresses each bullet point identified in SCC's response comments in the order each bullet point was raised.

Bullet Point 1– Pedestrian Crossing Improvements

5. SCC raised the concern that the controlled crossing on Egley Road and Hoe Valley School is at capacity during the school peak times. Additional pedestrians accessing the proposed development may cause this crossing to operate over capacity.

6. Vectos, in consultation with SCC, has designed a scheme which will improve the pedestrian capacity. **Figure 1** shows the design of the proposed crossing improvements. A scale drawing of this proposal is provided at **Appendix B**.

Figure 1 – Proposed Pedestrian Crossing Improvements – Egley Road /Hoe Valley School Junction



7. The proposals account for a 29.5m crossing in length, with two 10m crossing areas on either side of the road. The eastern footway alongside Egley Road is to be widened to 4m to increase the pedestrian waiting area. This will improve the environment for all pedestrians in this location and effectively mitigate the impact of the proposed development. Additionally, the northbound carriageway will be increased to 4m in width to allow for vehicles to overtake cyclists safely.

Bullet Point 2– Hoe Valley Peak Hour Period Trips

8. SCC has requested that the figures for the hour before the PM peak period are provided (16:00 – 17:00), which is considered to be busiest peak period for Hoe Valley School.

9. **Table 1** sets out the flows accounted by flow set type for both hour periods and the total difference between the 16:00 – 17:00 and 17:00 – 18:00 traffic flows. All movements at the junction have been included, including those which pass the site access along Egley Road.

Table 1 – Peak Hour Assessment

	All movements at junction		
Scenario	**1600-1700**	**1700-1800**	**Difference**
2019 Base	1661	1633	28
Hoe Valley Additional Trips (to take account of increase in pupils)	79	0	79
2022 Base (Hoe Valley Additional Trips)	1792	1688	104
Residential Trips	11	19	-8
David Lloyd Trips	177	221	-44
Full Egley Rd Development Trips	188	240	-52
2022 Base + Full Dev	1980	1928	52

10. **Table 1** indicates that there is a limited difference in trips between 16:00 – 17:00 and 17:00 – 18:00. With the exception of additional Hoe Valley trips – additional trips added to reflect the school operating at maximum capacity – all trips types are higher in the 17:00 – 18:00 period. Overall, an additional 52 vehicles in the 16:00 – 17:00 period will not alter the conclusions of the previous assessment for the 17:00 – 18:00 period.

Bullet Point 3 – Queue Length Validation Reports

11. A comparison between the observed max queue lengths and max modelled queues on the same arm in which they were recorded for each of the assessed junctions within the TA is presented within **Tables 2 – 8**. A comparison is not provided for Westfield Avenue / Kingfield Road junction due to there being no available queue length survey data. The raw queue length data was supplied to SCC on 5th March 2020 via e-mail.

12. Whilst queue length surveys are able to provide an estimation of conditions at the site, they cannot be expected to be replicated accurately within a model. Reasons for this include:

- The tendency for the model results to fluctuate between different model runs;
- The day-to-day variance in real-life conditions at the site meaning that results taken from one day cannot be applied too rigidly; and
- The software's mathematical interpretation of queue lengths compared with the subjective nature of human interpretation during manual surveys.

13. Neither TfL, DMRB nor WebTAG provide any specific guidelines on queue assessments. DMRB actually states that "precise validation of queue lengths can be difficult because of the volatility of the observed data". Overall, it is not appropriate to validate traffic models against queue lengths, and whilst the modelled queues are broadly reflective of the observed queues this should not be used as a measurement for the appropriateness of the models.

14. For the Claremont Avenue / Kingfield Road Junction Versions A and B the PICADY model was calibrated according to the average observed queue lengths of the queue length surveys due to the initially modelled base results not matching the observed queues. The capacity was

then adjusted using an iterative process until the model queue was broadly representative of the observed queue.

Table 2 – Observed and Modelled Max Queues Claremont Avenue / Kingfield Road / Wych Hill Lane Version A

	AM		PM		Saturday	
	Modelled Max Queue (Veh)	Observed Max Queue (Veh)	Modelled Max Queue (Veh)	Observed Max Queue (Veh)	Modelled Max Queue (Veh)	Observed Max Queue (Veh)
2019 Base	1.5	2	1.5	2	0.8	1

15. As can be seen in **Table 2** the observed queue lengths broadly match those within the model.

Table 3 – Observed and Modelled Max Queues Claremont Avenue / Kingfield Road / Wych Hill Lane Version B

	AM		PM		Saturday	
	Modelled Max Queue (Veh)	Observed Max Queue (Veh)	Modelled Max Queue (Veh)	Observed Max Queue (Veh)	Modelled Max Queue (Veh)	Observed Max Queue (Veh)
2019 Base	4.6	7	4.6	7	5.2	11

16. As can be seen in **Table 3** the observed queue lengths broadly match those within the model.

Table 4 – Observed and Modelled Max Queues Wych Hill Lane / Kingfield Road Roundabout

	AM		PM		Saturday	
	Modelled Max Queue (Veh)	Observed Max Queue (Veh)	Modelled Max Queue (Veh)	Observed Max Queue (Veh)	Modelled Max Queue (Veh)	Observed Max Queue (Veh)
2019 Base	6.4	7	3.6	7	1.4	8

17. As can be seen in **Table 4** the observed queue lengths broadly match those within the model.

Table 5 – Observed and Modelled Max Queues York Road / Guildford Road Junction

	AM		PM		Saturday	
	Modelled Max Queue (Veh)	Observed Max Queue (Veh)	Modelled Max Queue (Veh)	Observed Max Queue (Veh)	Modelled Max Queue (Veh)	Observed Max Queue (Veh)
2019 Base	1.0	11	0.4	5	0.3	4

18. As can be seen in **Table 5** the modelled queues are circa 10 vehicles below the observed queues in the AM peak. The maximum queue of 11 vehicles in the AM peak was a one-off

queue only observed in one five-minute period. The average queue over the AM peak hour was 5 vehicles which is closer to the modelled maximum queue.

Table 6 – Observed and Modelled Max Queues High Street / Kingfield Road Roundabout

	AM		PM		Saturday	
	Modelled Max Queue (Veh)	**Observed Max Queue (Veh)**	**Modelled Max Queue (Veh)**	**Observed Max Queue (Veh)**	**Modelled Max Queue (Veh)**	**Observed Max Queue (Veh)**
2019 Base	2.8	8	6.4	11	2.0	4

19. As can be seen in **Table 6** the observed queue lengths broadly match those within the model.

Table 7 – Observed and Modelled Max Queues Mayford Green Road / Egley Road Roundabout

	AM		PM		Saturday	
	Modelled Max Queue (Veh)	**Observed Max Queue (Veh)**	**Modelled Max Queue (Veh)**	**Observed Max Queue (Veh)**	**Modelled Max Queue (Veh)**	**Observed Max Queue (Veh)**
2019 Base	1.8	8	2.0	7	1.1	10

20. As can be seen in **Table 7** the modelled queues are circa 5-8 vehicles below the observed queues. In the AM peak period, the maximum queue of 8 vehicles was observed in two five-minute periods over the hour and the average over the one-hour period is closer to 5 vehicles. In the PM peak the maximum queue of 7 vehicles was observed in four five-minute periods over the hour and the average over the one-hour period is 6 vehicles. During the peak hour on Saturday, the maximum queue of 10 vehicles was observed once and in general queues did not exceed 3 vehicles. The average over the one-hour period was 4 vehicles.

Table 8 – Observed and Modelled Max Queues Egley Road Site Access Junction

	AM		PM		Saturday	
	Modelled Max Queue (Veh)	**Observed Max Queue (Veh)**	**Modelled Max Queue (Veh)**	**Observed Max Queue (Veh)**	**Modelled Max Queue (Veh)**	**Observed Max Queue (Veh)**
2019 Base	16.6	18	14.7	14	11.0	18

21. As can be seen in **Table 8** the observed queue lengths broadly match those within the model.

22. The data presented broadly demonstrates that the modelled queues and the observed survey queues are comparable. Therefore, the models are considered a reasonable basis for assessing the operation of the junctions in the future following the build out of the Egley Road development.

APPENDIX A

Tel: 02085418768
E-mail: abigail.solway@surreycc.gov.uk

Contact Officer: Abigail Solway
WOKING BOROUGH COUNCIL
CIVIC OFFICES
GLOUCESTER SQUARE
TOWN CENTRE
WOKING
GU21 1YL

5 March 2020

Dear Ben

APPLICATION NO. WO/19/1177
SITE: "Land South Of Hoe Valley School And East Of Railway Tracks, Egley Road, Woking, Surrey, GU22 0NH"

I refer to the above planning application which appears to affect a road for which Surrey County Council is the Highway Authority. You have requested our consideration of the highway and transport issues associated with this development, before I am able to provide a full response, I require the following information from the Applicant:

- The signal controlled crossing at the junction between Egley Road and Hoe Valley School is at capacity during the school peak times. As the development is proposing to increase pedestrian movements at these times, improvements to the crossing are required. This involves lengthening the island on the northern arm, and relocating the crossing location further north, away from the oak trees, and widening the footway slightly at the crossing point on the eastern side of the road. The Transport Development Planning Team would like to work together on drawing up plans and identifying a possible solution to this.
- Can the figures for the hour before the PM peak period please be provided (4-5pm), which is the Hoe Valley School peak.
- Queue length validation reports need to be submitted for the junctions that have been assessed.

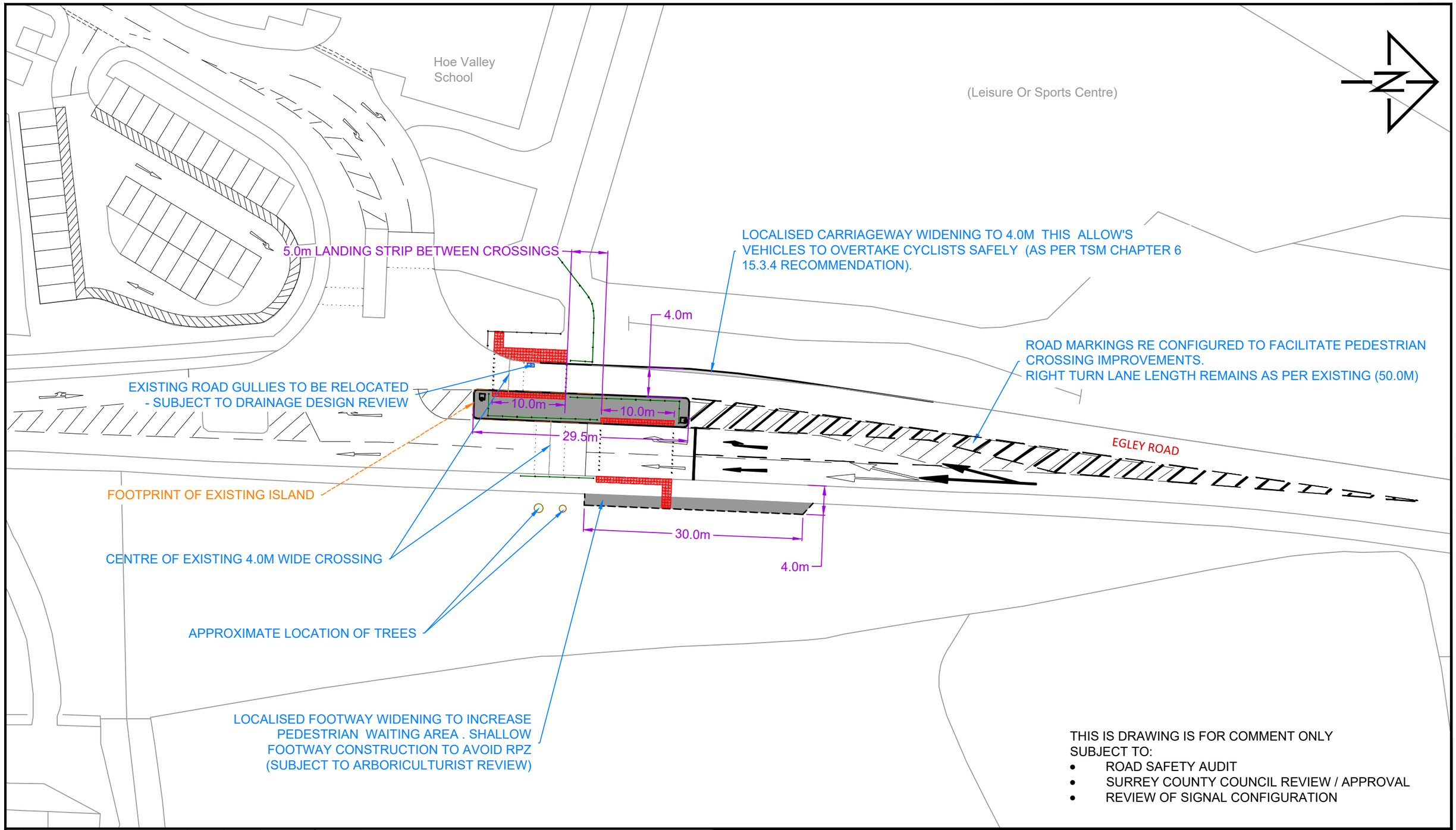
Please request that the Applicant provides the above amendments/information in sufficient time so that we may respond before your deadline for determination. Please ensure that the

response to this letter is in writing and all appropriate documentation, as requested, is attached.

Kind regards,

Abi

APPENDIX B



THIS IS DRAWING IS FOR COMMENT ONLY
SUBJECT TO:

- ROAD SAFETY AUDIT
- SURREY COUNTY COUNCIL REVIEW / APPROVAL
- REVIEW OF SIGNAL CONFIGURATION

REV.	DETAILS	DRAWN	CHECKED	DATE
.	.	.	.	.

STATUS:
INFORMATION ONLY

PROJECT:
Egley Road, Woking

CLIENT:
Gold Developments

DRAWING TITLE:
Proposed Improvements to Signalised Controlled Crossing at Egley Road and Hoe Valley School - (Offsite improvement Works)

vectos
5th Floor, 4 Colston Avenue, Bristol, BS1 4ST
t: 0117 203 5240 e: enquiries@vectos.co.uk

DRAWN:	CHECKED:	DATE:	SCALES:	DRAWING NUMBER:	REVISION:
SCJ	IS	18/04/19	1:250 @ A3	183923-B04	-

Woking Football Club and Egley Road

Egley Road - Hoe Valley School Highways Response

10/03/2020

183923B/N04-V1

Introduction

1. This Technical Note (TN) has been prepared by Vectos on behalf of Woking Football Club to respond to the transport comments made by Hoe Valley School (HVS) regarding the Egley Road planning applications (planning application reference number: WO/19/1177).

2. The development proposal, known as 'Egley Road', includes the redevelopment of the site, following the demolition of the existing building, to provide a health club building (Class D2) incorporating an external swimming pool and tennis/sports courts, the provision of 36 dwelling houses (Class C3) up to a maximum of 3 storeys in height, associated landscaping and car parking and new vehicular access from an existing road serving Hoe Valley School.

3. A copy of HVS's response comments which are dated 05/01/2020 and were received on 19/02/2020 is included at **Appendix A**.

4. This TN addresses each of the points identified in HVS's response comments in the order each point was raised.

Section 1.2, 2.2 and 2.25

5. Paragraphs 1.2, 2.2 and 2.25 should all state that the HVS share both their site and access with the Sport Box Leisure Centre and Gym.

Section 2.13

6. Vectos agree that Kingfield School is a primary school and Figure 2.5 within the submitted Egley Road TA displaying that it is a secondary school is a transposing error. This error does not affect any of the conclusions as it is currently assessed as a primary school within the trip distribution as detailed within Paragraph 5.3 and Figure 5.1 of the submitted Egley Road TA.

7. At the time of writing the Egley Road TA Vectos were not aware that Greenfields School had been vacant since July 2019. Notwithstanding this, the schools closure has no impact on the TAs findings as it was not used in the trip distribution assessments.

Traffic Survey Dates

8. A total of 9 Manual Classified Counts (MCC) and 6 Automated Traffic Counts (ATC) surveys were undertaken on the highway network surrounding the site to provide the baseline traffic data. The MCCs were undertaken on two dates to provide an assessment of a weekday and

weekend scenario. The weekday MCC survey was undertaken on 4th April 2019 between the times of 06:00-10:00 and 15:00-22:30, whilst the weekend survey was undertaken on 18th May 2019 between the times of 13:00-19:00. The weekend survey was undertaken without the presence of a Woking FC match. The ATC surveys were generally undertaken between 13th May and 19th May 2019 with the exception of one count which was assessed between 21st and 27th May 2019 due to an unanticipated error with recording equipment. None of the surveys were recorded in Easter or half terms holidays as shown in **Appendix B**.

Section 5.36 and Student Numbers

9. The traffic surveys used to inform both the Woking FC and Egley Road TAs were undertaken in April and May 2019. Vectos sought confirmation from HVS, that at the time of the surveys, the current number of students of 507 stated on the Ofsted Website[1] was correct. HVS confirmed that in April / May 2019 there was circa 510 students. This confirmation is provided in **Appendix C** for reference.

10. The same data taken from the Ofsted Website indicated that HVS has a maximum capacity of 840 students. As detailed within the submitted Egley Road TA, to forecast the traffic generation associated with the increase in pupil numbers for the 2022 future year, the traffic flows at the school site access were increased by 60% (a proportional increase from 507 to 840), and the additional trips were distributed accordingly. Should the actual number of students attending Hoe Valley School be more than stated, the uplift to be applied would be less, and therefore the uplift which has been applied and the assessment undertaken can be considered robust.

Woking FC Environmental Statement

11. In the associated planning application (planning application reference number: PLAN/2019/1176), Table 6.20 of Environmental Statement Chapter 6: Socio Economics, stating that HVS has 351 students on roll, is a transposing error. Vectos assessed the existing level of demand at the school based on 510 students in April / May 2019 as detailed in paragraph 10 of this TN.

Pedestrian Crossing and Road Safety

12. The applicant, in liaison with Surrey County Council (SCC), is proposing improvements to the pedestrian crossing at the HVS / Egley Road junction by lengthening the island on the northern arm, relocating the crossing location further north, and widening the landing strip between crossings to 5m. The improvements also include the widening the footway slightly at the crossing point on the eastern side of the road to increase the pedestrian waiting area and localised carriageway widening on the north western carriageway to allow vehicles to overtake cyclists safely. The improvements to the crossing are presented in **Appendix D** for

[1] https://reports.ofsted.gov.uk/provider/23/142009

reference. SCC is in general agreement with the proposed improvements, and the detail can be developed as part of any S278 agreement.

13. The localised widening of the eastern footway on the northern arm will increase the pedestrian waiting area. The increase in width of landing strip from 4m to 5m will allow for the greater capacity of the pedestrians to cross the carriageway at any one time and the lengthening of the island on the northern arm will allow for more pedestrians to wait to crossing to the west or east. This will mitigate the impact of the development and improve the pedestrian environment and general highway safety for all HVS students. Moreover, the localised carriageway widening on the north western carriageway will allow vehicles to overtake cyclists more safely than the existing arrangement.

Increased Traffic (Development Phase)

14. Increased Heavy Goods Vehicle (HGV) traffic during the development (construction phase) will be managed via a Construction Traffic Management Plan (CTMP), which Vectos expect to be conditioned as part of the planning permission. The CTMP will include details such as specific routes HGVs can take to and from the site and the times of day in which they can access / egress the site.

Increased Traffic through Site

15. The proposed pedestrian provision is to provide footways either side of the residential access carriageway and on the northern carriageway for the David Lloyd Gym, which will tie in the with the existing arrangement at HVS, connecting with Egley Road. No cycleways will be provided within the site for both the residential and gym elements of the site. However, the speed within the site will be restricted to 20mph and cyclists will be safely accommodated within the carriageways.

School Expansion

16. The development proposals expect to generate a total of 100 inbound and 56 outbound trips at the HVS Egley Road junction the AM Peak. This forecasted level of trips is not predicted to have negative impact on HVSs ability to expand the school building to cope with increased demand.

Traffic Surveys

17. All the of the traffic surveys were completed within term time as detailed within Paragraph 9 of this TN.

APPENDIX A

APPENDIX B

APPENDIX C

APPENDIX D

Egley Road

Egley Road Transport Modelling Technical Note

18/03/2020

183923B/N06-V1

Introduction

1. This Technical Note (TN) has been prepared by Vectos on behalf of Woking Football Club to respond to the transport modelling audit comments made by Surrey County Council (SCC) regarding the Egley Road planning application WO/19/1177.

2. The development proposal, known as 'Egley Road', includes the redevelopment of the site, following the demolition of the existing building, to provide a health club building (Class D2) incorporating an external swimming pool and tennis/sports courts, the provision of 36 dwelling houses (Class C3) up to a maximum of 3 storeys in height, associated landscaping and car parking and new vehicular access from an existing road serving Hoe Valley School.

3. Within the submitted Transport Assessment (TA) that accompanied the planning application a total of 7 junctions (detailed below) were assessed using Linsig software and TRL Junctions 9 software:

   - Site Access / Egley Road Junction;
   - Claremont Avenue / Kingfield Road Junction;
   - Guildford Road / York Road Junction;
   - Westfield Avenue / Kingfield Road Junction;
   - Mayford Green / Egley Road / Kingfield Road Roundabout;
   - High Street / Kingfield Road / Vicarage Road Roundabout; and
   - A247 / Egley Road / Wych Hill Lane Roundabout.

4. Following the submission of the first modelling TN to SCC on 24/02/2020, SCC has made further comments on 3 of the 7 junctions, received on 12/03/2020. The three junctions are the Westfield Avenue / Kingfield Road Junction, York Road / Guildford Road Junction and Claremont Avenue / Kingfield Road Version B junction.

5. The comments provided by SCC for each of the junctions have been compiled by Vectos and are detailed in **Appendix A**. The information provided within this TN includes justification for how each of the models have been configured, or where appropriate updated and amended, together with updated model results. Electronic copies of the updated models will be issued with this TN.

Claremont Avenue / Kingfield Road / Wych Hill Lane Version B

6. The SCC comments regarding the Claremont Avenue / Kingfield Road / Wych Hill Lane Version B PICADY Model state:

   'Queue surveys were only undertaken on one day per time scenario time period. For a more robust evaluation since queues are variable, multiple days should have been surveyed, especially since the intercept adjustments change the model results.'

   and

   'The right turn blocking queue has been modelled as 2 PCU, it is thought that 1 PCU would be more appropriate. Justification has been provided showing that 2 PCUs can fit but measurements taken do not support the view that 2 pcus could queue without hindering traffic behind assuming 1 pcu = 5.75m'

   and

   'The demand from "TP for Stadium and Flats" matches for most AM and PM movements. Nothing has been entered for the Arm A Kingfield Road to Arm B Wych Hill Lane throughout the scenarios. The 2019 Early Evening, 2024 Early Evening, 2019 Late evening, 2024 Late evening flows do not match. A FLAT profile has been used for the Weekday AM and PM peak hours. This is generally not acceptable for assessing the performance of a junction as it assumes even flow of traffic across the peak hour which can mask 'peaks' during the hour where traffic volumes can be higher and hence the junction is placed under more stress. Justification for this has been provided in "183923B-Woking FC Modelling Technical Note-V1" which is accepted since the flow is close to being flat. However, since the data exists, it would be preferred to input it as ODTAB (ONE HOUR) asks in future revisions of the model. The time periods of the FLAT profile have been changed to 60 minute lengths which is accepted.

   and

   'The HV proportions matches those provided on 13/01/20 for most movements, but nothing has been entered for the AM Arm A Kingfield Road to Arm B Wych Hill Lane. It has been noted that the proportions are minor though so would make little difference to the results.'

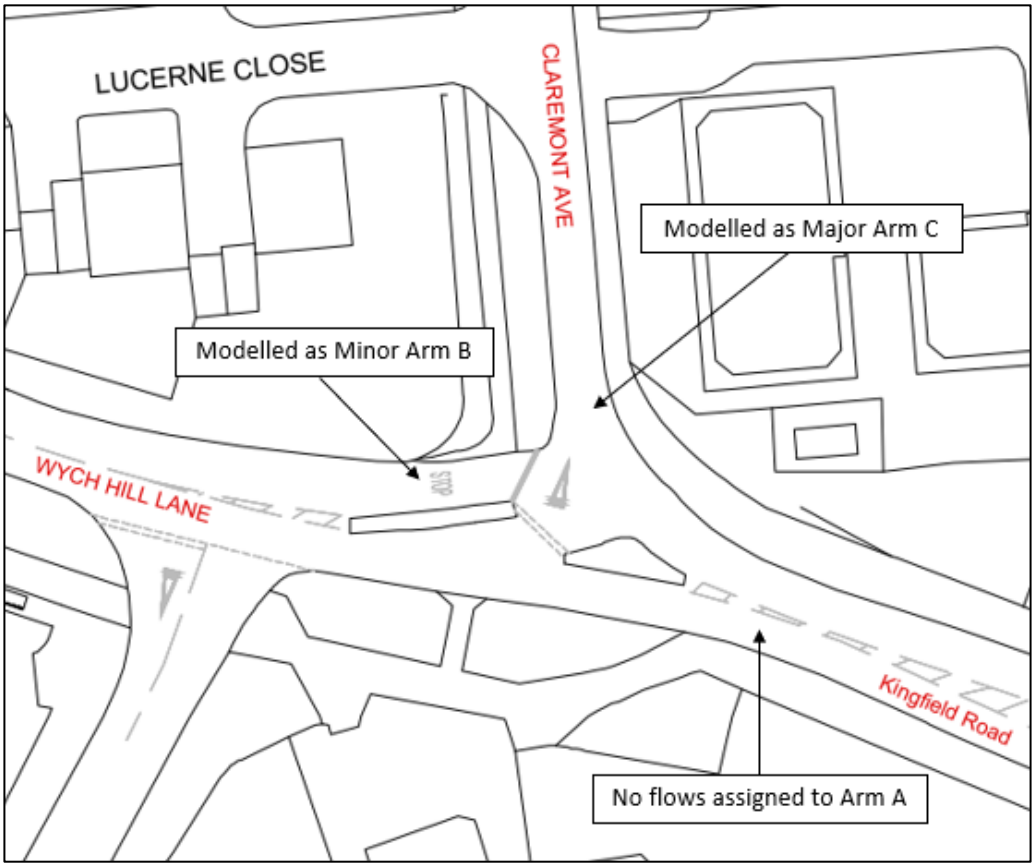
7. The queue length surveys were undertaken over three dates 04/04/2019, 06/04/2019 and 18/05/2019. The 04/04/2019 surveys were recorded between 06:00-23:30, the 04/04/2019 surveys were recorded between 13:00-19:00 and the 18/05/2019 surveys were recorded between 13:00-19:00. These surveys will be issued with this TN.

8. The right turn blocking queue for the major arm C has been altered to 1 PCU upon SCC's request and the junction remodelled.

9. The justification for the use of a FLAT profile was presented within the previously submitted modelling note on the 24/02/2020. For future versions of the model, Vectos is happy to undertake a sensitivity test using an ODTAB profile.

10. As detailed within the TA and previously submitted modelling note on the 24/02/2020 in the Version B model, Wych Hill Lane was modelled as the minor arm and Claremont Avenue as the right major turn arm. Flows for Kingfield Avenue (E) (Arm A) were not included within this model. This explains why there are no Arm A to B movements inserted within the model. For clarification details of the location of each arm is provided in **Figure 1**. The Arm A to B movement is modelling in the Version A model.

Figure 1 - Claremont Avenue / Kingfield Road / Wych Hill Lane Version B Lane Allocation



11. The updated model, with the right turn blocking value adjusted to 1 PCU, is presented in **Appendix B** and updated results are presented in **Table 1**.

Table 1 – Summary of Junctions 9 Results – Claremont Avenue / Kingfield Road / Wych Hill Lane Version B

	Base 2019		Base 2022		Base 2022 + Dev	
AM Peak	**Queue**	**RFC**	**Queue**	**RFC**	**Queue**	**RFC**
Kingfield Road (W)	4.6	0.83	5.9	0.86	3.8	0.80
Claremont Avenue	0.1	0.12	0.2	0.12	0.2	0.12
PM Peak	**Queue**	**RFC**	**Queue**	**RFC**	**Queue**	**RFC**
Kingfield Road (W)	4.6	0.83	5.9	0.86	2.8	0.74
Claremont Avenue	0.1	0.10	0.1	0.10	0.1	0.10
Saturday Peak	**Queue**	**RFC**	**Queue**	**RFC**	**Queue**	**RFC**
Kingfield Road (W)	5.2	0.85	6.8	0.88	3.8	0.80
Claremont Avenue	0.1	0.05	0.1	0.05	0.1	0.05

12. The results in **Table 1** indicate that in all scenarios the junction still will operate within capacity. This does not alter the conclusions made within the submitted TA that the results demonstrate that the Claremont Avenue / Kingfield Road Version B junction operates satisfactorily in all scenarios with a maximum RFC of 0.88 recorded on the Claremont Avenue arm in the Saturday Peak in the Base 2022 scenario. The removal of the existing David Lloyd trips from the network results in a net benefit for the junction in the 2022 + development scenario.

Guildford Road / York Road

13. The SCC comments regarding the Guildford Road / York Road PICADY Model state:

'Measurements for the junction are shown on Drawing Number 183923-PIC-01 (page 380). Having looked at this, the mastermap lines do not align properly with the kerb lines which may explain why the following discrepancies still persist:

The lane width at 5m has been measured as 6.60m. This is considered generous and a measurement of 5.60m is deemed more accurate.

The lane width at 10m has been measured as 6.00m. This is considered generous and a measurement of 5.00m is deemed more accurate.

The lane width at 15m has been measured as 5.60m. This is considered generous and a measurement of 4.75m is deemed more accurate.

The lane width at 20m has been measured as 5.20m. This is considered generous and a measurement of 4.50m is deemed more accurate.

The flare length has been estimated as 3.00 PCU. A flare length of 1.00 PCU would be considered more accurate.'

14. The minor arm geometries have been updated to match the above requirements along with the flare length being altered to 1 pcu.

15. The updated model is presented in **Appendix C** and updated results are presented in **Table 2**.

Table 2 – Summary of Junctions 9 Results – Guildford Road / York Road

	Base 2019		Base 2022		Base 2022 + Dev	
AM Peak	**Queue**	**RFC**	**Queue**	**RFC**	**Queue**	**RFC**
Guildford Road (S)	1.3	0.57	2.0	0.68	1.9	0.67
York Road	0.7	0.44	1.3	0.58	1.2	0.57
Guildford Road (N)	0.3	0.25	0.4	0.27	0.4	0.27
PM Peak	**Queue**	**RFC**	**Queue**	**RFC**	**Queue**	**RFC**
Guildford Road (S)	0.5	0.33	0.5	0.35	0.5	0.34
York Road	0.3	0.26	0.4	0.29	0.4	0.28
Guildford Road (N)	0.3	0.25	0.3	0.26	0.3	0.26
Saturday Peak	**Queue**	**RFC**	**Queue**	**RFC**	**Queue**	**RFC**
Guildford Road (S)	0.3	0.26	0.4	0.28	0.4	0.27
York Road	0.1	0.11	0.1	0.13	0.1	0.13
Guildford Road (N)	0.2	0.16	0.2	0.17	0.2	0.17

16. The results in **Table 2** indicate that in all scenarios the junction will operate within capacity. The results demonstrate that the Guilford Road / York Road junction operates satisfactorily in all scenarios with a maximum RFC of 0.68 recorded on Guildford Road (S) in the AM Peak in the Base 2022 + Development scenario which is still well within capacity.

Kingfield Road / Westfield Avenue

17. The SCC comments regarding the Kingfield Road / Westfield Avenue PICADY Model state:

'The width of the carriageway remains at 7.15m which the previous audit flagged as incorrect. Drawing number 183923-PIC-03 (page 477) has been provided showing where measurements have been taken. Having examined this, the measurements have been taken in locations around 20-25m away from the junction. The choice of locations seem arbitrary and should be located closer to the junction.'

18. The major arm geometry has been remeasured in locating closer to the junction, the junction measurement drawing is presented in **Appendix D**. The new measurements indicate measurements of 6.35m (3.2m + 3.1m + 3.1m + 3.3m / 2) The major arm has been measured with OS data and following TRL Junctions 9 Appendix B Section 21.4.1 Guidance. As per the guidance the major arm has been measured so '*that the width of any central reserve or turning bay is NOT included*.'

19. The updated model is presented in **Appendix E** and updated results are presented in **Table 3**.

Table 3 – Summary of Junctions 9 Results – Kingfield Road / Westfield Avenue

	Base 2019		Base 2022		Base 2022 + Dev	
AM Peak	**Queue**	**RFC**	**Queue**	**RFC**	**Queue**	**RFC**
Kingfield Road (E)	1.8	0.65	2.3	0.70	1.4	0.59
Westfield Avenue	0.7	0.41	0.9	0.48	0.5	0.36
Kingfield Road (W)	0.8	0.43	0.8	0.46	0.5	0.33
PM Peak	**Queue**	**RFC**	**Queue**	**RFC**	**Queue**	**RFC**
Kingfield Road (E)	0.6	0.37	0.6	0.39	0.3	0.25
Westfield Avenue	0.4	0.28	0.4	0.31	0.1	0.09
Kingfield Road (W)	0.9	0.48	1.0	0.51	0.5	0.34
Saturday Peak	**Queue**	**RFC**	**Queue**	**RFC**	**Queue**	**RFC**
Kingfield Road (E)	0.5	0.33	0.5	0.34	0.3	0.24
Westfield Avenue	0.2	0.14	0.2	0.16	0.1	0.05
Kingfield Road (W)	0.5	0.32	0.5	0.34	0.3	0.25

20. The results in **Table 3** indicate that in all scenarios the junction operates within capacity with a maximum RFC of 0.70 recorded on Kingfield Road in the AM Peak in the Base 2022 scenario.

Summary

21. This Technical Note (TN) has been prepared by Vectos on behalf of Woking Football Club to respond to the transport modelling audit comments made by Surrey County Council (SCC) regarding the Egley Road planning application WO/19/1177.

22. All 3 of the updated junctions report similar results, if not better results in some instances, than the results presented within the originally submitted TA, indicating greater capacity at the junctions than originally assessed. Paired with this all of the 3 junctions are still predicted to work well within capacity.

23. In summary NPPF Policy 109 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 would be severe.*' The updated models presented within this TN display that there will be no severe traffic impact in terms of junction capacity on the local road network as a result of the development.

24. Therefore, the scheme is acceptable in transport terms.

APPENDIX A

Westfield Avenue/Kingfield Road

PICADY_Network_Coding	Major arm geometry	The width of the carriageway remains at 7.15m which the previous audit flagged as incorrect. Drawing number 183923-PIC-03 (page 477) has been provided showing where measurements have been taken. Having examined this, the measurements have been taken in locations around 20-25m away from the junction. The choice of locations seem arbitrary and should be located closer to the junction. The right turn bay has been appropriately measured, this blocks after 6 PCUs. Visibility for right turn is 80.8m which is accepted.	Please re-measure the major arm width in appropriate locations close to the junction.	4

York Road/Guildford Road

PICADY_Network_Coding	Minor arm geometry	Measurements for the junction are shown on Drawing Number 183923-PIC-01 (page 380). Having looked at this, the mastermap lines do not align properly with the kerb lines which may explain why the following discrepancies still persist: The lane width at 5m has been measured as 6.60m. This is considered generous and a measurement of 5.60m is deemed more accurate. The lane width at 10m has been measured as 6.00m. This is considered generous and a measurement of 5.00m is deemed more accurate. The lane width at 15m has been measured as 5.60m. This is considered generous and a measurement of 4.75m is deemed more accurate. The lane width at 20m has been measured as 5.20m. This is considered generous and a measurement of 4.50m is deemed more accurate. The flare length has been estimated as 3.00 PCU. A flare length of 1.00 PCU would be considered more accurate. The width at the giveway has been measured as 10.00m. This is accepted. Visibilities to the left and right are satisfactory.	Please ensure minor arm geometries are corrected or provide justification for the current modelled geometries.	3

Claremont Avenue/Kingfield Road

PICADY_Network_Coding	Arms	Arms have been correctly identified. A stream intercept adjustment has been applied to many scenarios with a different value per scenario. This has been justified in the modelling technical note supplied on 25/02/20: "The PICADY model was calibrated according to the observed queue lengths of the queue length surveys due to the initially modelled base results not matching the observed queues. The capacity was then adjusted using through an iterative process using intercept values until the model queue was representative of the observed queue." This is considered appropriate, however queue surveys were only undertaken on one day per time scenario time period. For a more robust evaluation since queues are variable, multiple days should have been surveyed, especially since the intercept adjustments change the model results.	For more robust modelling please complete queue surveys on multiple days. This should be done for future revisions of the model.	2
PICADY_Network_Coding	Major arm geometry	The following justification has been given for the major arm width: "Claremont Avenue is modelled as the major right turn arm in this Version B model. A judgment has been made that the width is 6m due to Claremont Avenue only being one way and 4m in width. Normally a major arm width is for two-way movement with each of the four carriageway half widths being totalled and then dived by 2 (based on TRL Junctions 9 Appendix B Section 21.4.1 Guidance). Therefore, if a measurement of 4m was input into the model it would calculate the results based on 2m carriageway half widths which is not an accurate representation. Because of this it is required to insert a measurement of 6m to ensure the model assess a lane width of 3m. This is considered a robust approach as 6m can be seen as standard measurement for a major arm carriageway width." The visibility for the right turn is suitable. The right turn blocking queue has been modelled as 2 PCU, it is thought that 1 PCU would be more appropriate. Justification has been provided showing that 2 PCUs can fit but measurements taken do not support the view that 2 pcus could queue without hindering traffic behind assuming 1 pcu = 5.75m.	Please review the right turn blocking queue for Claremont Avenue.	3
PICADY_Network_Coding	Demand	The demand from "TP for Stadium and Flats" matches for most AM and PM movements. Nothing has been entered for the Arm A Kingfield Road to Arm B Wych Hill Lane throughout the scenarios. The 2019 Early Evening, 2024 Early Evening, 2019 Late evening, 2024 Late evening flows do not match. A FLAT profile has been used for the Weekday AM and PM peak hours. This is generally not acceptable for assessing the performance of a junction as it assumes even flow of traffic across the peak hour which can mask 'peaks' during the hour where traffic volumes can be higher and hence the junction is placed under more stress. Justification for this has been provided in "183923B-Woking FC Modelling Technical Note-V1" which is accepted since the flow is close to being flat. However, since the data exists, it would be preferred to input it as ODTAB (ONE HOUR) asks in future revisions of the model. The time periods of the FLAT profile have been changed to 60 minute lengths which is accepted.	Please review the demand which does not match. Please enter a value for the Arm A to B movement. In future revisions of the model please use ODTAB (ONE HOUR).	3
PICADY_Network_Coding	Vehicle mix	The HV proportions matches those provided on 13/01/20 for most movements, but nothing has been entered for the AM Arm A Kingfield Road to Arm B Wych Hill Lane. It has been noted that the proportions are minor though so would make little difference to the results.		1

APPENDIX B

Junctions 9

PICADY 9 - Priority Intersection Module

Version: 9.5.1.7462

For sales and distribution information, program advice and maintenance, contact TRL:
+44 (0)1344 379777 software@trl.co.uk www.trlsoftware.co.uk

Filename: Claremont Avenue_Kingfield Road_Wych Hill Lane Junction Ver.B 200318(AM Peak).j9
Path: X:\Projects\180000\183923B - Woking FC - Post Submission\MODELLING\200318_Egley Rd Updated Models TD
Report generation date: 18/03/2020 12:15:52

Summary of junction performance

	AM				
	Set ID	Queue (Veh)	Delay (s)	RFC	LOS
2019					
Stream B-AC	D1	4.6	33.57	0.83	D
Stream C-AB		0.1	6.17	0.12	A
2022					
Stream B-AC	D4	5.9	41.59	0.86	E
Stream C-AB		0.2	6.17	0.12	A
2022 + Dev					
Stream B-AC	D7	3.8	28.21	0.80	D
Stream C-AB		0.2	6.20	0.12	A

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	(untitled)
Location	
Site number	
Date	25/07/2019
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	VECTOS\frances.cathcartburn
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

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
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 period length (min)	Time segment length (min)	Run automatically
D1	2019	AM	FLAT	07:45	08:45	60	15	✓
D4	2022	AM	FLAT	07:45	08:45	60	15	✓
D7	2022 + Dev	AM	FLAT	07:45	08:45	60	15	✓

Analysis Set Details

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

2019, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Claremont Avenue/Kingfield Road Junction	T-Junction	Two-way		17.24	C

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	Kingfield Road		Major
B	Wych Hill Lane		Minor
C	Claremont Avenue		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C - Claremont Avenue	6.00			59.8	✓	1.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor arm type	Lane width (m)	Visibility to left (m)	Visibility to right (m)
B - Wych Hill Lane	One lane	4.30	16	71

Slope / Intercept / Capacity

Stream Intercept Adjustments

Stream intercept adjustment	Use adjustment	Reason	Direct intercept adjustment (PCU/hr)
B-AC	✓		151

Priority Intersection Slopes and Intercepts

Stream	Intercept (Veh/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
B-A	585	0.107	0.269	0.169	0.385
B-C	756	0.116	0.293	-	-
C-B	609	0.236	0.236	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.

Streams may be combined, in which case capacity will be adjusted.

Values are shown for the first time segment only; they may differ for subsequent time segments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D1	2019	AM	FLAT	07:45	08:45	60	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 (%)
A - Kingfield Road		FLAT	✓	0	100.000
B - Wych Hill Lane		FLAT	✓	514	100.000
C - Claremont Avenue		FLAT	✓	515	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A - Kingfield Road	B - Wych Hill Lane	C - Claremont Avenue
From	A - Kingfield Road	0	0	0
	B - Wych Hill Lane	514	0	0
	C - Claremont Avenue	444	71	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Kingfield Road	B - Wych Hill Lane	C - Claremont Avenue
From	A - Kingfield Road	0	0	0
	B - Wych Hill Lane	2	0	0
	C - Claremont Avenue	2	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-AC	0.83	33.57	4.6	D	514	514
C-AB	0.12	6.17	0.1	A	77	77
C-A					438	438
A-B					0	0
A-C					0	0

Main Results for each time segment

07:45 - 08:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	514	129	620	0.829	498	0.0	4.1	26.762	D
C-AB	77	19	660	0.117	76	0.0	0.1	6.160	A
C-A	438	109			438				
A-B	0	0			0				
A-C	0	0			0				

08:00 - 08:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	514	129	619	0.830	513	4.1	4.4	32.753	D
C-AB	77	19	660	0.117	77	0.1	0.1	6.173	A
C-A	438	109			438				
A-B	0	0			0				
A-C	0	0			0				

08:15 - 08:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	514	129	619	0.830	513	4.4	4.6	33.331	D
C-AB	77	19	660	0.117	77	0.1	0.1	6.173	A
C-A	438	109			438				
A-B	0	0			0				
A-C	0	0			0				

08:30 - 08:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	514	129	619	0.830	514	4.6	4.6	33.568	D
C-AB	77	19	660	0.117	77	0.1	0.1	6.173	A
C-A	438	109			438				
A-B	0	0			0				
A-C	0	0			0				

2022, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Claremont Avenue/Kingfield Road Junction	T-Junction	Two-way		21.25	C

Junction Network Options

Driving side	Lighting
Left	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 period length (min)	Time segment length (min)	Run automatically
D4	2022	AM	FLAT	07:45	08:45	60	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 (%)
A - Kingfield Road		FLAT	✓	0	100.000
B - Wych Hill Lane		FLAT	✓	532	100.000
C - Claremont Avenue		FLAT	✓	534	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A - Kingfield Road	B - Wych Hill Lane	C - Claremont Avenue
From	A - Kingfield Road	0	0	0
	B - Wych Hill Lane	532	0	0
	C - Claremont Avenue	460	74	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Kingfield Road	B - Wych Hill Lane	C - Claremont Avenue
From	A - Kingfield Road	0	0	0
	B - Wych Hill Lane	2	0	0
	C - Claremont Avenue	2	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-AC	0.86	41.59	5.9	E	532	532
C-AB	0.12	6.17	0.2	A	81	81
C-A					453	453
A-B					0	0
A-C					0	0

Main Results for each time segment

07:45 - 08:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	532	133	616	0.864	512	0.0	4.9	30.590	D
C-AB	81	20	665	0.122	80	0.0	0.1	6.156	A
C-A	453	113			453				
A-B	0	0			0				
A-C	0	0			0				

08:00 - 08:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	532	133	616	0.864	530	4.9	5.5	39.785	E
C-AB	81	20	665	0.122	81	0.1	0.2	6.167	A
C-A	453	113			453				
A-B	0	0			0				
A-C	0	0			0				

08:15 - 08:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	532	133	616	0.864	531	5.5	5.7	41.036	E
C-AB	81	20	665	0.122	81	0.2	0.2	6.169	A
C-A	453	113			453				
A-B	0	0			0				
A-C	0	0			0				

08:30 - 08:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	532	133	616	0.864	531	5.7	5.9	41.593	E
C-AB	81	20	665	0.122	81	0.2	0.2	6.167	A
C-A	453	113			453				
A-B	0	0			0				
A-C	0	0			0				

2022 + Dev, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Claremont Avenue/Kingfield Road Junction	T-Junction	Two-way		14.36	B

Junction Network Options

Driving side	Lighting
Left	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 period length (min)	Time segment length (min)	Run automatically
D7	2022 + Dev	AM	FLAT	07:45	08:45	60	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 (%)
A - Kingfield Road		FLAT	✓	0	100.000
B - Wych Hill Lane		FLAT	✓	493	100.000
C - Claremont Avenue		FLAT	✓	511	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A - Kingfield Road	B - Wych Hill Lane	C - Claremont Avenue
From	A - Kingfield Road	0	0	0
	B - Wych Hill Lane	493	0	0
	C - Claremont Avenue	437	74	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Kingfield Road	B - Wych Hill Lane	C - Claremont Avenue
From	A - Kingfield Road	0	0	0
	B - Wych Hill Lane	2	0	0
	C - Claremont Avenue	2	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-AC	0.80	28.21	3.8	D	493	493
C-AB	0.12	6.20	0.2	A	80	80
C-A					431	431
A-B					0	0
A-C					0	0

Main Results for each time segment

07:45 - 08:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	493	123	620	0.796	479	0.0	3.4	23.769	C
C-AB	80	20	662	0.122	80	0.0	0.1	6.182	A
C-A	431	108			431				
A-B	0	0			0				
A-C	0	0			0				

08:00 - 08:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	493	123	620	0.796	492	3.4	3.6	27.805	D
C-AB	80	20	662	0.122	80	0.1	0.1	6.195	A
C-A	431	108			431				
A-B	0	0			0				
A-C	0	0			0				

08:15 - 08:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	493	123	620	0.796	493	3.6	3.7	28.094	D
C-AB	80	20	662	0.122	80	0.1	0.1	6.196	A
C-A	431	108			431				
A-B	0	0			0				
A-C	0	0			0				

08:30 - 08:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	493	123	620	0.796	493	3.7	3.8	28.206	D
C-AB	80	20	662	0.122	80	0.1	0.2	6.196	A
C-A	431	108			431				
A-B	0	0			0				
A-C	0	0			0				

Junctions 9

PICADY 9 - Priority Intersection Module

Version: 9.5.1.7462

Filename: Claremont Avenue_Kingfield Road_Wych Hill Lane Junction Ver.B 200318 (PM Peak).j9
Path: X:\Projects\180000\183923B - Woking FC - Post Submission\MODELLING\200318_Egley Rd Updated Models TD
Report generation date: 18/03/2020 12:18:12

Summary of junction performance

	PM				
	Set ID	Queue (Veh)	Delay (s)	RFC	LOS
2019					
Stream B-AC	D2	4.6	34.14	0.83	D
Stream C-AB		0.1	6.32	0.10	A
2022					
Stream B-AC	D5	5.9	42.23	0.86	E
Stream C-AB		0.1	6.32	0.10	A
2022 + Dev					
Stream B-AC	D8	2.8	22.83	0.74	C
Stream C-AB		0.1	6.36	0.10	A

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	(untitled)
Location	
Site number	
Date	25/07/2019
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	VECTOS\frances.cathcartburn
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

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
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 period length (min)	Time segment length (min)	Run automatically
D2	2019	PM	FLAT	16:45	17:45	60	15	✓
D5	2022	PM	FLAT	16:45	17:45	60	15	✓
D8	2022 + Dev	PM	FLAT	16:45	17:45	60	15	✓

Analysis Set Details

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

2019, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Claremont Avenue/Kingfield Road Junction	T-Junction	Two-way		17.80	C

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	Kingfield Road		Major
B	Wych Hill Lane		Minor
C	Claremont Avenue		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C - Claremont Avenue	6.00			59.8	✓	1.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor arm type	Lane width (m)	Visibility to left (m)	Visibility to right (m)
B - Wych Hill Lane	One lane	4.30	16	71

Slope / Intercept / Capacity

Stream Intercept Adjustments

Stream intercept adjustment	Use adjustment	Reason	Direct intercept adjustment (PCU/hr)
B-AC	✓		122

Priority Intersection Slopes and Intercepts

Stream	Intercept (Veh/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
B-A	585	0.107	0.269	0.169	0.385
B-C	756	0.116	0.293	-	-
C-B	609	0.236	0.236	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.

Streams may be combined, in which case capacity will be adjusted.

Values are shown for the first time segment only; they may differ for subsequent time segments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D2	2019	PM	FLAT	16:45	17:45	60	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 (%)
A - Kingfield Road		FLAT	✓	0	100.000
B - Wych Hill Lane		FLAT	✓	508	100.000
C - Claremont Avenue		FLAT	✓	482	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A - Kingfield Road	B - Wych Hill Lane	C - Claremont Avenue
From	A - Kingfield Road	0	0	0
	B - Wych Hill Lane	508	0	0
	C - Claremont Avenue	426	56	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Kingfield Road	B - Wych Hill Lane	C - Claremont Avenue
From	A - Kingfield Road	0	0	0
	B - Wych Hill Lane	0	0	0
	C - Claremont Avenue	1	4	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-AC	0.83	34.14	4.6	D	508	508
C-AB	0.10	6.32	0.1	A	60	60
C-A					422	422
A-B					0	0
A-C					0	0

Main Results for each time segment

16:45 - 17:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	508	127	612	0.830	492	0.0	4.1	27.130	D
C-AB	60	15	630	0.096	60	0.0	0.1	6.312	A
C-A	422	105			422				
A-B	0	0			0				
A-C	0	0			0				

17:00 - 17:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	508	127	612	0.831	507	4.1	4.4	33.287	D
C-AB	60	15	630	0.096	60	0.1	0.1	6.320	A
C-A	422	105			422				
A-B	0	0			0				
A-C	0	0			0				

17:15 - 17:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	508	127	612	0.831	507	4.4	4.6	33.893	D
C-AB	60	15	630	0.096	60	0.1	0.1	6.323	A
C-A	422	105			422				
A-B	0	0			0				
A-C	0	0			0				

17:30 - 17:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	508	127	612	0.831	508	4.6	4.6	34.141	D
C-AB	60	15	630	0.096	60	0.1	0.1	6.323	A
C-A	422	105			422				
A-B	0	0			0				
A-C	0	0			0				

2022, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Claremont Avenue/Kingfield Road Junction	T-Junction	Two-way		21.93	C

Junction Network Options

Driving side	Lighting
Left	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 period length (min)	Time segment length (min)	Run automatically
D5	2022	PM	FLAT	16:45	17:45	60	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 (%)
A - Kingfield Road		FLAT	✓	0	100.000
B - Wych Hill Lane		FLAT	✓	526	100.000
C - Claremont Avenue		FLAT	✓	499	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A - Kingfield Road	B - Wych Hill Lane	C - Claremont Avenue
From	A - Kingfield Road	0	0	0
	B - Wych Hill Lane	526	0	0
	C - Claremont Avenue	441	58	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Kingfield Road	B - Wych Hill Lane	C - Claremont Avenue
From	A - Kingfield Road	0	0	0
	B - Wych Hill Lane	0	0	0
	C - Claremont Avenue	1	4	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-AC	0.86	42.23	5.9	E	526	526
C-AB	0.10	6.32	0.1	A	63	63
C-A					436	436
A-B					0	0
A-C					0	0

Main Results for each time segment

16:45 - 17:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	526	132	608	0.865	506	0.0	5.0	30.956	D
C-AB	63	16	633	0.099	62	0.0	0.1	6.305	A
C-A	436	109			436				
A-B	0	0			0				
A-C	0	0			0				

17:00 - 17:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	526	132	608	0.865	524	5.0	5.5	40.358	E
C-AB	63	16	633	0.099	63	0.1	0.1	6.313	A
C-A	436	109			436				
A-B	0	0			0				
A-C	0	0			0				

17:15 - 17:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	526	132	608	0.865	525	5.5	5.8	41.656	E
C-AB	63	16	633	0.099	63	0.1	0.1	6.315	A
C-A	436	109			436				
A-B	0	0			0				
A-C	0	0			0				

17:30 - 17:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	526	132	608	0.865	525	5.8	5.9	42.231	E
C-AB	63	16	633	0.099	63	0.1	0.1	6.313	A
C-A	436	109			436				
A-B	0	0			0				
A-C	0	0			0				

2022 + Dev, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Claremont Avenue/Kingfield Road Junction	T-Junction	Two-way		11.77	B

Junction Network Options

Driving side	Lighting
Left	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 period length (min)	Time segment length (min)	Run automatically
D8	2022 + Dev	PM	FLAT	16:45	17:45	60	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 (%)
A - Kingfield Road		FLAT	✓	0	100.000
B - Wych Hill Lane		FLAT	✓	458	100.000
C - Claremont Avenue		FLAT	✓	459	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A - Kingfield Road	B - Wych Hill Lane	C - Claremont Avenue
From	A - Kingfield Road	0	0	0
	B - Wych Hill Lane	458	0	0
	C - Claremont Avenue	401	58	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Kingfield Road	B - Wych Hill Lane	C - Claremont Avenue
From	A - Kingfield Road	0	0	0
	B - Wych Hill Lane	0	0	0
	C - Claremont Avenue	1	4	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-AC	0.74	22.83	2.8	C	458	458
C-AB	0.10	6.36	0.1	A	62	62
C-A					397	397
A-B					0	0
A-C					0	0

Main Results for each time segment

16:45 - 17:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	458	115	615	0.744	447	0.0	2.7	20.330	C
C-AB	62	16	629	0.099	62	0.0	0.1	6.348	A
C-A	397	99			397				
A-B	0	0			0				
A-C	0	0			0				

17:00 - 17:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	458	115	615	0.745	458	2.7	2.8	22.672	C
C-AB	62	16	629	0.099	62	0.1	0.1	6.359	A
C-A	397	99			397				
A-B	0	0			0				
A-C	0	0			0				

17:15 - 17:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	458	115	615	0.745	458	2.8	2.8	22.784	C
C-AB	62	16	629	0.099	62	0.1	0.1	6.359	A
C-A	397	99			397				
A-B	0	0			0				
A-C	0	0			0				

17:30 - 17:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	458	115	615	0.745	458	2.8	2.8	22.827	C
C-AB	62	16	629	0.099	62	0.1	0.1	6.356	A
C-A	397	99			397				
A-B	0	0			0				
A-C	0	0			0				

Junctions 9

PICADY 9 - Priority Intersection Module

Version: 9.5.1.7462

For sales and distribution information, program advice and maintenance, contact TRL:
+44 (0)1344 379777 software@trl.co.uk www.trlsoftware.co.uk

Filename: Claremont Avenue_Kingfield Road_Wych Hill Lane Junction Ver.B 200318 (Sat Peak).j9
Path: X:\Projects\180000\183923B - Woking FC - Post Submission\MODELLING\200318_Egley Rd Updated Models TD
Report generation date: 18/03/2020 12:21:38

Summary of junction performance

	Saturday Peak				
	Set ID	Queue (Veh)	Delay (s)	RFC	LOS
	2019				
Stream B-AC	D3	5.2	39.20	0.85	E
Stream C-AB		0.1	6.08	0.05	A
	2022				
Stream B-AC	D6	6.8	49.74	0.88	E
Stream C-AB		0.1	6.08	0.05	A
	2022 + Dev				
Stream B-AC	D9	3.8	30.23	0.80	D
Stream C-AB		0.1	6.09	0.05	A

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	(untitled)
Location	
Site number	
Date	25/07/2019
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	VECTOS\frances.cathcartburn
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

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
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 period length (min)	Time segment length (min)	Run automatically
D3	2019	Saturday Peak	FLAT	13:00	14:00	60	15	✓
D6	2022	Saturday Peak	FLAT	13:00	14:00	60	15	✓
D9	2022 + Dev	Saturday Peak	FLAT	13:00	14:00	60	15	✓

Analysis Set Details

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

2019, Saturday Peak

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Claremont Avenue/Kingfield Road Junction	T-Junction	Two-way		24.40	C

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	Kingfield Road		Major
B	Wych Hill Lane		Minor
C	Claremont Avenue		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C - Claremont Avenue	6.00			59.8	✓	1.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor arm type	Lane width (m)	Visibility to left (m)	Visibility to right (m)
B - Wych Hill Lane	One lane	4.30	16	71

Slope / Intercept / Capacity

Stream Intercept Adjustments

Stream intercept adjustment	Use adjustment	Reason	Direct intercept adjustment (PCU/hr)
B-AC	✓		60

Priority Intersection Slopes and Intercepts

Stream	Intercept (Veh/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
B-A	585	0.107	0.269	0.169	0.385
B-C	756	0.116	0.293	-	-
C-B	609	0.236	0.236	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.

Streams may be combined, in which case capacity will be adjusted.

Values are shown for the first time segment only; they may differ for subsequent time segments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D3	2019	Saturday Peak	FLAT	13:00	14:00	60	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 (%)
A - Kingfield Road		FLAT	✓	0	100.000
B - Wych Hill Lane		FLAT	✓	497	100.000
C - Claremont Avenue		FLAT	✓	306	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A - Kingfield Road	B - Wych Hill Lane	C - Claremont Avenue
From	A - Kingfield Road	0	0	0
	B - Wych Hill Lane	497	0	0
	C - Claremont Avenue	277	29	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Kingfield Road	B - Wych Hill Lane	C - Claremont Avenue
From	A - Kingfield Road	0	0	0
	B - Wych Hill Lane	0	0	0
	C - Claremont Avenue	1	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-AC	0.85	39.20	5.2	E	497	497
C-AB	0.05	6.08	0.1	A	30	30
C-A					276	276
A-B					0	0
A-C					0	0

Main Results for each time segment

13:00 - 13:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	497	124	587	0.847	479	0.0	4.5	29.875	D
C-AB	30	7	622	0.048	29	0.0	0.1	6.076	A
C-A	276	69			276				
A-B	0	0			0				
A-C	0	0			0				

13:15 - 13:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	497	124	586	0.847	495	4.5	4.9	37.847	E
C-AB	30	7	622	0.048	30	0.1	0.1	6.081	A
C-A	276	69			276				
A-B	0	0			0				
A-C	0	0			0				

13:30 - 13:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	497	124	586	0.847	496	4.9	5.1	38.794	E
C-AB	30	7	622	0.048	30	0.1	0.1	6.081	A
C-A	276	69			276				
A-B	0	0			0				
A-C	0	0			0				

13:45 - 14:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	497	124	586	0.847	497	5.1	5.2	39.199	E
C-AB	30	7	622	0.048	30	0.1	0.1	6.078	A
C-A	276	69			276				
A-B	0	0			0				
A-C	0	0			0				

2022, Saturday Peak

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Claremont Avenue/Kingfield Road Junction	T-Junction	Two-way		30.93	D

Junction Network Options

Driving side	Lighting
Left	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 period length (min)	Time segment length (min)	Run automatically
D6	2022	Saturday Peak	FLAT	13:00	14:00	60	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 (%)
A - Kingfield Road		FLAT	✓	0	100.000
B - Wych Hill Lane		FLAT	✓	516	100.000
C - Claremont Avenue		FLAT	✓	317	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A - Kingfield Road	B - Wych Hill Lane	C - Claremont Avenue
From	A - Kingfield Road	0	0	0
	B - Wych Hill Lane	516	0	0
	C - Claremont Avenue	287	30	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Kingfield Road	B - Wych Hill Lane	C - Claremont Avenue
From	A - Kingfield Road	0	0	0
	B - Wych Hill Lane	0	0	0
	C - Claremont Avenue	1	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-AC	0.88	49.74	6.8	E	516	516
C-AB	0.05	6.08	0.1	A	31	31
C-A					286	286
A-B					0	0
A-C					0	0

Main Results for each time segment

13:00 - 13:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	516	129	584	0.883	494	0.0	5.5	34.287	D
C-AB	31	8	623	0.049	30	0.0	0.1	6.077	A
C-A	286	72			286				
A-B	0	0			0				
A-C	0	0			0				

13:15 - 13:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	516	129	584	0.883	513	5.5	6.2	46.637	E
C-AB	31	8	623	0.049	31	0.1	0.1	6.082	A
C-A	286	72			286				
A-B	0	0			0				
A-C	0	0			0				

13:30 - 13:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	516	129	584	0.883	515	6.2	6.6	48.740	E
C-AB	31	8	623	0.049	31	0.1	0.1	6.080	A
C-A	286	72			286				
A-B	0	0			0				
A-C	0	0			0				

13:45 - 14:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	516	129	584	0.883	515	6.6	6.8	49.735	E
C-AB	31	8	623	0.049	31	0.1	0.1	6.080	A
C-A	286	72			286				
A-B	0	0			0				
A-C	0	0			0				

2022 + Dev, Saturday Peak

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Claremont Avenue/Kingfield Road Junction	T-Junction	Two-way		18.87	C

Junction Network Options

Driving side	Lighting
Left	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 period length (min)	Time segment length (min)	Run automatically
D9	2022 + Dev	Saturday Peak	FLAT	13:00	14:00	60	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 (%)
A - Kingfield Road		FLAT	✓	0	100.000
B - Wych Hill Lane		FLAT	✓	471	100.000
C - Claremont Avenue		FLAT	✓	291	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A - Kingfield Road	B - Wych Hill Lane	C - Claremont Avenue
From	A - Kingfield Road	0	0	0
	B - Wych Hill Lane	471	0	0
	C - Claremont Avenue	261	30	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Kingfield Road	B - Wych Hill Lane	C - Claremont Avenue
From	A - Kingfield Road	0	0	0
	B - Wych Hill Lane	0	0	0
	C - Claremont Avenue	1	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-AC	0.80	30.23	3.8	D	471	471
C-AB	0.05	6.09	0.1	A	31	31
C-A					260	260
A-B					0	0
A-C					0	0

Main Results for each time segment

13:00 - 13:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	471	118	589	0.800	457	0.0	3.5	25.195	D
C-AB	31	8	621	0.049	30	0.0	0.1	6.090	A
C-A	260	65			260				
A-B	0	0			0				
A-C	0	0			0				

13:15 - 13:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	471	118	589	0.800	470	3.5	3.7	29.750	D
C-AB	31	8	621	0.049	31	0.1	0.1	6.092	A
C-A	260	65			260				
A-B	0	0			0				
A-C	0	0			0				

13:30 - 13:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	471	118	589	0.800	471	3.7	3.8	30.099	D
C-AB	31	8	621	0.049	31	0.1	0.1	6.092	A
C-A	260	65			260				
A-B	0	0			0				
A-C	0	0			0				

13:45 - 14:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	471	118	589	0.800	471	3.8	3.8	30.232	D
C-AB	31	8	621	0.049	31	0.1	0.1	6.092	A
C-A	260	65			260				
A-B	0	0			0				
A-C	0	0			0				

APPENDIX C

Junctions 9

PICADY 9 - Priority Intersection Module

Version: 9.5.1.7462

Filename: Guildford Road_York Road Junction 200318.j9
Path: X:\Projects\180000\183923B - Woking FC - Post Submission\MODELLING\200318_Egley Rd Updated Models TD
Report generation date: 18/03/2020 12:11:43

Summary of junction performance

	AM					PM					Saturday Peak				
	Set ID	Queue (Veh)	Delay (s)	RFC	LOS	Set ID	Queue (Veh)	Delay (s)	RFC	LOS	Set ID	Queue (Veh)	Delay (s)	RFC	LOS
	2019														
Stream B-C	D1	1.3	19.52	0.57	C	D2	0.5	10.89	0.33	B	D3	0.3	9.66	0.26	A
Stream B-A		0.7	53.25	0.44	F		0.3	36.92	0.26	E		0.1	24.62	0.11	C
Stream C-AB		0.3	8.95	0.25	A		0.3	8.42	0.25	A		0.2	8.00	0.16	A
	2022														
Stream B-C	D4	2.0	29.55	0.68	D	D5	0.5	11.60	0.35	B	D6	0.4	10.17	0.28	B
Stream B-A		1.3	88.45	0.58	F		0.4	42.48	0.29	E		0.1	26.65	0.13	D
Stream C-AB		0.4	9.44	0.27	A		0.3	8.68	0.26	A		0.2	8.20	0.17	A
	2022 + Dev														
Stream B-C	D7	1.9	28.58	0.67	D	D8	0.5	11.33	0.34	B	D9	0.4	9.99	0.27	A
Stream B-A		1.2	84.70	0.57	F		0.4	40.08	0.28	E		0.1	26.07	0.13	D
Stream C-AB		0.4	9.43	0.27	A		0.3	8.57	0.26	A		0.2	8.17	0.17	A

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	Guildford Road / York Road PICADY
Location	Woking
Site number	
Date	08/07/2019
Version	
Status	(new file)
Identifier	
Client	Goldev Woking Ltd
Jobnumber	183923
Enumerator	VECTOS\frances.cathcartburn
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

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
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
D1	2019	AM	ONE HOUR	07:30	09:00	15	✓
D2	2019	PM	ONE HOUR	16:30	18:00	15	✓
D3	2019	Saturday Peak	ONE HOUR	12:45	14:15	15	✓
D4	2022	AM	ONE HOUR	07:30	09:00	15	✓
D5	2022	PM	ONE HOUR	16:30	18:00	15	✓
D6	2022	Saturday Peak	ONE HOUR	12:45	14:15	15	✓
D7	2022 + Dev	AM	ONE HOUR	07:30	09:00	15	✓
D8	2022 + Dev	PM	ONE HOUR	16:30	18:00	15	✓
D9	2022 + Dev	Saturday Peak	ONE HOUR	12:45	14:15	15	✓

Analysis Set Details

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

2019, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	York Road Junction	T-Junction	Two-way		4.24	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	Guildford Road (S)		Major
B	York Road		Minor
C	Guildford Road (N)		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Width for right turn (m)	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C - Guildford Road (N)	6.55		✓	4.00	131.0	✓	10.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor arm type	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate flare length	Flare length (PCU)	Visibility to left (m)	Visibility to right (m)
B - York Road	One lane plus flare	10.00	5.60	5.00	4.75	4.50		1.00	31	34

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Stream	Intercept (Veh/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
B-A	439	0.078	0.197	0.124	0.282
B-C	726	0.109	0.275	-	-
C-B	777	0.294	0.294	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.

Streams may be combined, in which case capacity will be adjusted.

Values are shown for the first time segment only; they may differ for subsequent time segments.

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	2019	AM	ONE HOUR	07:30	09:00	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 (%)
A - Guildford Road (S)		ONE HOUR	✓	683	100.000
B - York Road		ONE HOUR	✓	267	100.000
C - Guildford Road (N)		ONE HOUR	✓	883	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A - Guildford Road (S)	B - York Road	C - Guildford Road (N)
From	A - Guildford Road (S)	0	6	677
	B - York Road	48	0	219
	C - Guildford Road (N)	759	124	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Guildford Road (S)	B - York Road	C - Guildford Road (N)
From	A - Guildford Road (S)	0	0	3
	B - York Road	0	0	0
	C - Guildford Road (N)	3	2	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-C	0.57	19.52	1.3	C	201	301
B-A	0.44	53.25	0.7	F	44	66
C-AB	0.25	8.95	0.3	A	114	171
C-A					696	1045
A-B					6	8
A-C					621	932

Main Results for each time segment

07:30 - 07:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	165	41	556	0.297	163	0.0	0.4	9.133	A
B-A	36	9	230	0.157	35	0.0	0.2	18.452	C
C-AB	93	23	609	0.153	93	0.0	0.2	6.957	A
C-A	571	143			571				
A-B	5	1			5				
A-C	510	127			510				

07:45 - 08:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	197	49	513	0.384	196	0.4	0.6	11.332	B
B-A	43	11	186	0.232	43	0.2	0.3	25.112	D
C-AB	111	28	580	0.192	111	0.2	0.2	7.680	A
C-A	682	171			682				
A-B	5	1			5				
A-C	609	152			609				

08:00 - 08:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	241	60	430	0.561	239	0.6	1.2	18.613	C
B-A	53	13	121	0.437	51	0.3	0.7	50.545	F
C-AB	137	34	539	0.253	136	0.2	0.3	8.931	A
C-A	836	209			836				
A-B	7	2			7				
A-C	745	186			745				

08:15 - 08:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	241	60	425	0.567	241	1.2	1.3	19.519	C
B-A	53	13	120	0.441	53	0.7	0.7	53.255	F
C-AB	137	34	539	0.253	137	0.3	0.3	8.949	A
C-A	836	209			836				
A-B	7	2			7				
A-C	745	186			745				

08:30 - 08:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	197	49	509	0.387	199	1.3	0.6	11.709	B
B-A	43	11	185	0.233	45	0.7	0.3	25.962	D
C-AB	111	28	580	0.192	112	0.3	0.2	7.702	A
C-A	682	171			682				
A-B	5	1			5				
A-C	609	152			609				

08:45 - 09:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	165	41	554	0.298	166	0.6	0.4	9.288	A
B-A	36	9	230	0.157	37	0.3	0.2	18.710	C
C-AB	93	23	609	0.153	94	0.2	0.2	6.982	A
C-A	571	143			571				
A-B	5	1			5				
A-C	510	127			510				

2019, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	York Road Junction	T-Junction	Two-way		2.05	A

Junction Network Options

Driving side	Lighting
Left	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	2019	PM	ONE HOUR	16:30	18:00	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 (%)
A - Guildford Road (S)		ONE HOUR	✓	588	100.000
B - York Road		ONE HOUR	✓	177	100.000
C - Guildford Road (N)		ONE HOUR	✓	1094	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A - Guildford Road (S)	B - York Road	C - Guildford Road (N)
From	A - Guildford Road (S)	0	15	573
	B - York Road	31	0	146
	C - Guildford Road (N)	968	126	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Guildford Road (S)	B - York Road	C - Guildford Road (N)
From	A - Guildford Road (S)	0	0	2
	B - York Road	0	0	2
	C - Guildford Road (N)	1	3	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-C	0.33	10.89	0.5	B	134	201
B-A	0.26	36.92	0.3	E	28	43
C-AB	0.25	8.42	0.3	A	116	173
C-A					888	1332
A-B					14	21
A-C					526	789

Main Results for each time segment

16:30 - 16:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	110	27	578	0.190	109	0.0	0.2	7.659	A
B-A	23	6	230	0.101	23	0.0	0.1	17.327	C
C-AB	95	24	626	0.152	94	0.0	0.2	6.764	A
C-A	729	182			729				
A-B	11	3			11				
A-C	431	108			431				

16:45 - 17:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	131	33	547	0.240	131	0.2	0.3	8.648	A
B-A	28	7	189	0.147	28	0.1	0.2	22.269	C
C-AB	113	28	601	0.189	113	0.2	0.2	7.378	A
C-A	870	218			870				
A-B	13	3			13				
A-C	515	129			515				

17:00 - 17:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	161	40	493	0.326	160	0.3	0.5	10.802	B
B-A	34	9	132	0.259	33	0.2	0.3	36.435	E
C-AB	139	35	566	0.245	138	0.2	0.3	8.408	A
C-A	1066	266			1066				
A-B	17	4			17				
A-C	631	158			631				

17:15 - 17:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	161	40	491	0.327	161	0.5	0.5	10.893	B
B-A	34	9	132	0.260	34	0.3	0.3	36.924	E
C-AB	139	35	566	0.245	139	0.3	0.3	8.421	A
C-A	1066	266			1066				
A-B	17	4			17				
A-C	631	158			631				

17:30 - 17:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	131	33	545	0.241	132	0.5	0.3	8.728	A
B-A	28	7	189	0.147	29	0.3	0.2	22.502	C
C-AB	113	28	601	0.189	114	0.3	0.2	7.397	A
C-A	870	218			870				
A-B	13	3			13				
A-C	515	129			515				

17:45 - 18:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	110	27	577	0.191	110	0.3	0.2	7.721	A
B-A	23	6	230	0.101	24	0.2	0.1	17.446	C
C-AB	95	24	626	0.152	95	0.2	0.2	6.788	A
C-A	729	182			729				
A-B	11	3			11				
A-C	431	108			431				

2019, Saturday Peak

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	York Road Junction	T-Junction	Two-way		1.42	A

Junction Network Options

Driving side	Lighting
Left	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
D3	2019	Saturday Peak	ONE HOUR	12:45	14:15	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 (%)
A - Guildford Road (S)		ONE HOUR	✓	650	100.000
B - York Road		ONE HOUR	✓	135	100.000
C - Guildford Road (N)		ONE HOUR	✓	798	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A - Guildford Road (S)	B - York Road	C - Guildford Road (N)
From	A - Guildford Road (S)	0	8	642
	B - York Road	17	0	118
	C - Guildford Road (N)	718	80	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Guildford Road (S)	B - York Road	C - Guildford Road (N)
From	A - Guildford Road (S)	0	0	1
	B - York Road	0	0	4
	C - Guildford Road (N)	1	5	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-C	0.26	9.66	0.3	A	108	162
B-A	0.11	24.62	0.1	C	16	23
C-AB	0.16	8.00	0.2	A	73	110
C-A					659	988
A-B					7	11
A-C					589	884

Main Results for each time segment

12:45 - 13:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	89	22	573	0.155	88	0.0	0.2	7.416	A
B-A	13	3	249	0.051	13	0.0	0.1	15.208	C
C-AB	60	15	602	0.100	60	0.0	0.1	6.636	A
C-A	541	135			541				
A-B	6	2			6				
A-C	483	121			483				

13:00 - 13:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	106	27	544	0.195	106	0.2	0.2	8.208	A
B-A	15	4	214	0.071	15	0.1	0.1	18.109	C
C-AB	72	18	575	0.125	72	0.1	0.1	7.152	A
C-A	645	161			645				
A-B	7	2			7				
A-C	577	144			577				

13:15 - 13:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	130	32	503	0.258	130	0.2	0.3	9.632	A
B-A	19	5	165	0.113	19	0.1	0.1	24.551	C
C-AB	88	22	538	0.164	88	0.1	0.2	7.997	A
C-A	791	198			791				
A-B	9	2			9				
A-C	707	177			707				

13:30 - 13:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	130	32	503	0.259	130	0.3	0.3	9.661	A
B-A	19	5	165	0.113	19	0.1	0.1	24.621	C
C-AB	88	22	538	0.164	88	0.2	0.2	8.004	A
C-A	791	198			791				
A-B	9	2			9				
A-C	707	177			707				

13:45 - 14:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	106	27	544	0.195	106	0.3	0.2	8.240	A
B-A	15	4	214	0.071	15	0.1	0.1	18.158	C
C-AB	72	18	575	0.125	72	0.2	0.1	7.164	A
C-A	645	161			645				
A-B	7	2			7				
A-C	577	144			577				

14:00 - 14:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	89	22	572	0.155	89	0.2	0.2	7.454	A
B-A	13	3	249	0.051	13	0.1	0.1	15.252	C
C-AB	60	15	602	0.100	60	0.1	0.1	6.649	A
C-A	541	135			541				
A-B	6	2			6				
A-C	483	121			483				

2022, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	York Road Junction	T-Junction	Two-way		6.16	A

Junction Network Options

Driving side	Lighting
Left	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
D4	2022	AM	ONE HOUR	07:30	09:00	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 (%)
A - Guildford Road (S)		ONE HOUR	✓	734	100.000
B - York Road		ONE HOUR	✓	277	100.000
C - Guildford Road (N)		ONE HOUR	✓	948	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A - Guildford Road (S)	B - York Road	C - Guildford Road (N)
From	A - Guildford Road (S)	0	6	728
	B - York Road	50	0	227
	C - Guildford Road (N)	820	128	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Guildford Road (S)	B - York Road	C - Guildford Road (N)
From	A - Guildford Road (S)	0	0	3
	B - York Road	0	0	0
	C - Guildford Road (N)	3	2	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-C	0.68	29.55	2.0	D	208	312
B-A	0.58	88.45	1.3	F	46	69
C-AB	0.27	9.44	0.4	A	117	176
C-A					752	1129
A-B					6	8
A-C					668	1002

Main Results for each time segment

07:30 - 07:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	171	43	542	0.315	169	0.0	0.5	9.615	A
B-A	38	9	215	0.175	37	0.0	0.2	20.157	C
C-AB	96	24	598	0.161	96	0.0	0.2	7.156	A
C-A	617	154			617				
A-B	5	1			5				
A-C	548	137			548				

07:45 - 08:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	204	51	493	0.414	203	0.5	0.7	12.390	B
B-A	45	11	167	0.269	44	0.2	0.4	29.235	D
C-AB	115	29	566	0.203	115	0.2	0.3	7.973	A
C-A	737	184			737				
A-B	5	1			5				
A-C	654	164			654				

08:00 - 08:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	250	62	382	0.655	246	0.7	1.8	25.741	D
B-A	55	14	96	0.572	52	0.4	1.1	76.977	F
C-AB	141	35	522	0.270	140	0.3	0.4	9.421	A
C-A	903	226			903				
A-B	7	2			7				
A-C	802	200			802				

08:15 - 08:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	250	62	370	0.676	249	1.8	2.0	29.550	D
B-A	55	14	94	0.584	55	1.1	1.3	88.446	F
C-AB	141	35	522	0.270	141	0.4	0.4	9.443	A
C-A	903	226			903				
A-B	7	2			7				
A-C	802	200			802				

08:30 - 08:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	204	51	485	0.421	209	2.0	0.7	13.257	B
B-A	45	11	166	0.271	48	1.3	0.4	31.446	D
C-AB	115	29	566	0.203	116	0.4	0.3	7.996	A
C-A	737	184			737				
A-B	5	1			5				
A-C	654	164			654				

08:45 - 09:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	171	43	540	0.317	172	0.7	0.5	9.822	A
B-A	38	9	214	0.176	38	0.4	0.2	20.536	C
C-AB	96	24	598	0.161	97	0.3	0.2	7.186	A
C-A	617	154			617				
A-B	5	1			5				
A-C	548	137			548				

2022, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	York Road Junction	T-Junction	Two-way		2.21	A

Junction Network Options

Driving side	Lighting
Left	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
D5	2022	PM	ONE HOUR	16:30	18:00	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 (%)
A - Guildford Road (S)		ONE HOUR	✓	610	100.000
B - York Road		ONE HOUR	✓	183	100.000
C - Guildford Road (N)		ONE HOUR	✓	1134	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A - Guildford Road (S)	B - York Road	C - Guildford Road (N)
From	A - Guildford Road (S)	0	16	594
	B - York Road	32	0	151
	C - Guildford Road (N)	1003	131	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Guildford Road (S)	B - York Road	C - Guildford Road (N)
From	A - Guildford Road (S)	0	0	2
	B - York Road	0	0	2
	C - Guildford Road (N)	1	3	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-C	0.35	11.60	0.5	B	139	208
B-A	0.29	42.48	0.4	E	29	44
C-AB	0.26	8.68	0.3	A	120	180
C-A					920	1381
A-B					15	22
A-C					545	818

Main Results for each time segment

16:30 - 16:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	114	28	572	0.199	113	0.0	0.2	7.813	A
B-A	24	6	222	0.108	24	0.0	0.1	18.065	C
C-AB	99	25	621	0.159	98	0.0	0.2	6.873	A
C-A	755	189			755				
A-B	12	3			12				
A-C	447	112			447				

16:45 - 17:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	136	34	539	0.252	135	0.2	0.3	8.909	A
B-A	29	7	180	0.160	29	0.1	0.2	23.770	C
C-AB	118	29	595	0.198	118	0.2	0.2	7.537	A
C-A	902	225			902				
A-B	14	4			14				
A-C	534	133			534				

17:00 - 17:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	166	42	479	0.347	165	0.3	0.5	11.469	B
B-A	35	9	120	0.294	34	0.2	0.4	41.710	E
C-AB	144	36	559	0.258	144	0.2	0.3	8.662	A
C-A	1104	276			1104				
A-B	18	4			18				
A-C	654	164			654				

17:15 - 17:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	166	42	476	0.349	166	0.5	0.5	11.603	B
B-A	35	9	120	0.294	35	0.4	0.4	42.483	E
C-AB	144	36	559	0.258	144	0.3	0.3	8.676	A
C-A	1104	276			1104				
A-B	18	4			18				
A-C	654	164			654				

17:30 - 17:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	136	34	537	0.253	136	0.5	0.3	9.005	A
B-A	29	7	180	0.160	30	0.4	0.2	24.101	C
C-AB	118	29	595	0.198	118	0.3	0.2	7.558	A
C-A	902	225			902				
A-B	14	4			14				
A-C	534	133			534				

17:45 - 18:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	114	28	571	0.199	114	0.3	0.3	7.880	A
B-A	24	6	222	0.108	24	0.2	0.1	18.209	C
C-AB	99	25	621	0.159	99	0.2	0.2	6.898	A
C-A	755	189			755				
A-B	12	3			12				
A-C	447	112			447				

2022, Saturday Peak

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	York Road Junction	T-Junction	Two-way		1.50	A

Junction Network Options

Driving side	Lighting
Left	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
D6	2022	Saturday Peak	ONE HOUR	12:45	14:15	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 (%)
A - Guildford Road (S)		ONE HOUR	✓	674	100.000
B - York Road		ONE HOUR	✓	140	100.000
C - Guildford Road (N)		ONE HOUR	✓	828	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A - Guildford Road (S)	B - York Road	C - Guildford Road (N)
From	A - Guildford Road (S)	0	8	666
	B - York Road	18	0	122
	C - Guildford Road (N)	745	83	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Guildford Road (S)	B - York Road	C - Guildford Road (N)
From	A - Guildford Road (S)	0	0	1
	B - York Road	0	0	5
	C - Guildford Road (N)	1	5	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-C	0.28	10.17	0.4	B	112	168
B-A	0.13	26.65	0.1	D	17	25
C-AB	0.17	8.20	0.2	A	76	114
C-A					684	1025
A-B					7	11
A-C					611	917

Main Results for each time segment

12:45 - 13:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	92	23	562	0.164	91	0.0	0.2	7.638	A
B-A	14	3	242	0.056	13	0.0	0.1	15.695	C
C-AB	62	16	597	0.105	62	0.0	0.1	6.727	A
C-A	561	140			561				
A-B	6	2			6				
A-C	501	125			501				

13:00 - 13:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	110	27	532	0.206	109	0.2	0.3	8.516	A
B-A	16	4	206	0.079	16	0.1	0.1	18.957	C
C-AB	75	19	569	0.131	74	0.1	0.1	7.280	A
C-A	670	167			670				
A-B	7	2			7				
A-C	599	150			599				

13:15 - 13:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	134	34	489	0.275	134	0.3	0.4	10.138	B
B-A	20	5	155	0.128	20	0.1	0.1	26.554	D
C-AB	91	23	530	0.172	91	0.1	0.2	8.192	A
C-A	820	205			820				
A-B	9	2			9				
A-C	733	183			733				

13:30 - 13:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	134	34	488	0.275	134	0.4	0.4	10.175	B
B-A	20	5	155	0.128	20	0.1	0.1	26.648	D
C-AB	91	23	530	0.172	91	0.2	0.2	8.200	A
C-A	820	205			820				
A-B	9	2			9				
A-C	733	183			733				

13:45 - 14:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	110	27	531	0.206	110	0.4	0.3	8.555	A
B-A	16	4	206	0.079	16	0.1	0.1	19.023	C
C-AB	75	19	569	0.131	75	0.2	0.2	7.289	A
C-A	670	167			670				
A-B	7	2			7				
A-C	599	150			599				

14:00 - 14:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	92	23	561	0.164	92	0.3	0.2	7.681	A
B-A	14	3	242	0.056	14	0.1	0.1	15.745	C
C-AB	62	16	597	0.105	63	0.2	0.1	6.744	A
C-A	561	140			561				
A-B	6	2			6				
A-C	501	125			501				

2022 + Dev, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	York Road Junction	T-Junction	Two-way		5.99	A

Junction Network Options

Driving side	Lighting
Left	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
D7	2022 + Dev	AM	ONE HOUR	07:30	09:00	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 (%)
A - Guildford Road (S)		ONE HOUR	✓	732	100.000
B - York Road		ONE HOUR	✓	277	100.000
C - Guildford Road (N)		ONE HOUR	✓	946	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A - Guildford Road (S)	B - York Road	C - Guildford Road (N)
From	A - Guildford Road (S)	0	6	726
	B - York Road	50	0	227
	C - Guildford Road (N)	818	128	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Guildford Road (S)	B - York Road	C - Guildford Road (N)
From	A - Guildford Road (S)	0	0	3
	B - York Road	0	0	0
	C - Guildford Road (N)	2	2	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-C	0.67	28.58	1.9	D	208	312
B-A	0.57	84.70	1.2	F	46	69
C-AB	0.27	9.43	0.4	A	117	176
C-A					751	1126
A-B					6	8
A-C					666	999

Main Results for each time segment

07:30 - 07:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	171	43	542	0.315	169	0.0	0.5	9.599	A
B-A	38	9	216	0.174	37	0.0	0.2	20.017	C
C-AB	96	24	598	0.161	96	0.0	0.2	7.150	A
C-A	616	154			616				
A-B	5	1			5				
A-C	547	137			547				

07:45 - 08:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	204	51	494	0.413	203	0.5	0.7	12.349	B
B-A	45	11	168	0.267	44	0.2	0.3	28.892	D
C-AB	115	29	567	0.203	115	0.2	0.3	7.964	A
C-A	735	184			735				
A-B	5	1			5				
A-C	653	163			653				

08:00 - 08:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	250	62	385	0.649	246	0.7	1.7	25.156	D
B-A	55	14	98	0.562	52	0.3	1.1	74.396	F
C-AB	141	35	523	0.270	140	0.3	0.4	9.405	A
C-A	901	225			901				
A-B	7	2			7				
A-C	799	200			799				

08:15 - 08:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	250	62	374	0.668	249	1.7	1.9	28.577	D
B-A	55	14	96	0.573	55	1.1	1.2	84.695	F
C-AB	141	35	523	0.270	141	0.4	0.4	9.427	A
C-A	901	225			901				
A-B	7	2			7				
A-C	799	200			799				

08:30 - 08:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	204	51	486	0.419	209	1.9	0.7	13.163	B
B-A	45	11	167	0.269	48	1.2	0.4	30.947	D
C-AB	115	29	567	0.203	116	0.4	0.3	7.987	A
C-A	735	184			735				
A-B	5	1			5				
A-C	653	163			653				

08:45 - 09:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	171	43	540	0.316	172	0.7	0.5	9.802	A
B-A	38	9	216	0.175	38	0.4	0.2	20.388	C
C-AB	96	24	598	0.161	97	0.3	0.2	7.177	A
C-A	616	154			616				
A-B	5	1			5				
A-C	547	137			547				

2022 + Dev, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	York Road Junction	T-Junction	Two-way		2.17	A

Junction Network Options

Driving side	Lighting
Left	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
D8	2022 + Dev	PM	ONE HOUR	16:30	18:00	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 (%)
A - Guildford Road (S)		ONE HOUR	✓	594	100.000
B - York Road		ONE HOUR	✓	183	100.000
C - Guildford Road (N)		ONE HOUR	✓	1123	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A - Guildford Road (S)	B - York Road	C - Guildford Road (N)
From	A - Guildford Road (S)	0	16	578
	B - York Road	32	0	151
	C - Guildford Road (N)	992	131	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Guildford Road (S)	B - York Road	C - Guildford Road (N)
From	A - Guildford Road (S)	0	0	2
	B - York Road	0	0	2
	C - Guildford Road (N)	1	3	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-C	0.34	11.33	0.5	B	139	208
B-A	0.28	40.08	0.4	E	29	44
C-AB	0.26	8.57	0.3	A	120	180
C-A					910	1365
A-B					15	22
A-C					530	796

Main Results for each time segment

16:30 - 16:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	114	28	576	0.197	113	0.0	0.2	7.754	A
B-A	24	6	226	0.107	24	0.0	0.1	17.758	C
C-AB	99	25	624	0.158	98	0.0	0.2	6.827	A
C-A	747	187			747				
A-B	12	3			12				
A-C	435	109			435				

16:45 - 17:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	136	34	544	0.250	135	0.2	0.3	8.813	A
B-A	29	7	184	0.157	29	0.1	0.2	23.139	C
C-AB	118	29	599	0.197	118	0.2	0.2	7.471	A
C-A	892	223			892				
A-B	14	4			14				
A-C	520	130			520				

17:00 - 17:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	166	42	486	0.342	166	0.3	0.5	11.211	B
B-A	35	9	125	0.282	34	0.2	0.4	39.438	E
C-AB	144	36	564	0.256	144	0.2	0.3	8.555	A
C-A	1092	273			1092				
A-B	18	4			18				
A-C	636	159			636				

17:15 - 17:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	166	42	484	0.344	166	0.5	0.5	11.327	B
B-A	35	9	125	0.282	35	0.4	0.4	40.083	E
C-AB	144	36	564	0.256	144	0.3	0.3	8.570	A
C-A	1092	273			1092				
A-B	18	4			18				
A-C	636	159			636				

17:30 - 17:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	136	34	542	0.251	136	0.5	0.3	8.898	A
B-A	29	7	184	0.156	30	0.4	0.2	23.434	C
C-AB	118	29	599	0.197	118	0.3	0.2	7.489	A
C-A	892	223			892				
A-B	14	4			14				
A-C	520	130			520				

17:45 - 18:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	114	28	575	0.198	114	0.3	0.2	7.819	A
B-A	24	6	226	0.107	24	0.2	0.1	17.893	C
C-AB	99	25	624	0.158	99	0.2	0.2	6.854	A
C-A	747	187			747				
A-B	12	3			12				
A-C	435	109			435				

2022 + Dev, Saturday Peak

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	York Road Junction	T-Junction	Two-way		1.49	A

Junction Network Options

Driving side	Lighting
Left	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
D9	2022 + Dev	Saturday Peak	ONE HOUR	12:45	14:15	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 (%)
A - Guildford Road (S)		ONE HOUR	✓	669	100.000
B - York Road		ONE HOUR	✓	140	100.000
C - Guildford Road (N)		ONE HOUR	✓	815	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A - Guildford Road (S)	B - York Road	C - Guildford Road (N)
From	A - Guildford Road (S)	0	8	661
	B - York Road	18	0	122
	C - Guildford Road (N)	732	83	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Guildford Road (S)	B - York Road	C - Guildford Road (N)
From	A - Guildford Road (S)	0	0	1
	B - York Road	0	0	4
	C - Guildford Road (N)	1	5	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-C	0.27	9.99	0.4	A	112	168
B-A	0.13	26.07	0.1	D	17	25
C-AB	0.17	8.17	0.2	A	76	114
C-A					672	1008
A-B					7	11
A-C					607	910

Main Results for each time segment

12:45 - 13:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	92	23	568	0.162	91	0.0	0.2	7.537	A
B-A	14	3	245	0.055	13	0.0	0.1	15.551	C
C-AB	62	16	598	0.105	62	0.0	0.1	6.714	A
C-A	551	138			551				
A-B	6	2			6				
A-C	498	124			498				

13:00 - 13:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	110	27	538	0.204	109	0.2	0.3	8.390	A
B-A	16	4	208	0.078	16	0.1	0.1	18.715	C
C-AB	75	19	570	0.131	74	0.1	0.1	7.261	A
C-A	658	165			658				
A-B	7	2			7				
A-C	594	149			594				

13:15 - 13:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	134	34	495	0.271	134	0.3	0.4	9.957	A
B-A	20	5	158	0.125	20	0.1	0.1	25.982	D
C-AB	91	23	532	0.172	91	0.1	0.2	8.163	A
C-A	806	201			806				
A-B	9	2			9				
A-C	728	182			728				

13:30 - 13:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	134	34	495	0.272	134	0.4	0.4	9.993	A
B-A	20	5	158	0.126	20	0.1	0.1	26.067	D
C-AB	91	23	532	0.172	91	0.2	0.2	8.171	A
C-A	806	201			806				
A-B	9	2			9				
A-C	728	182			728				

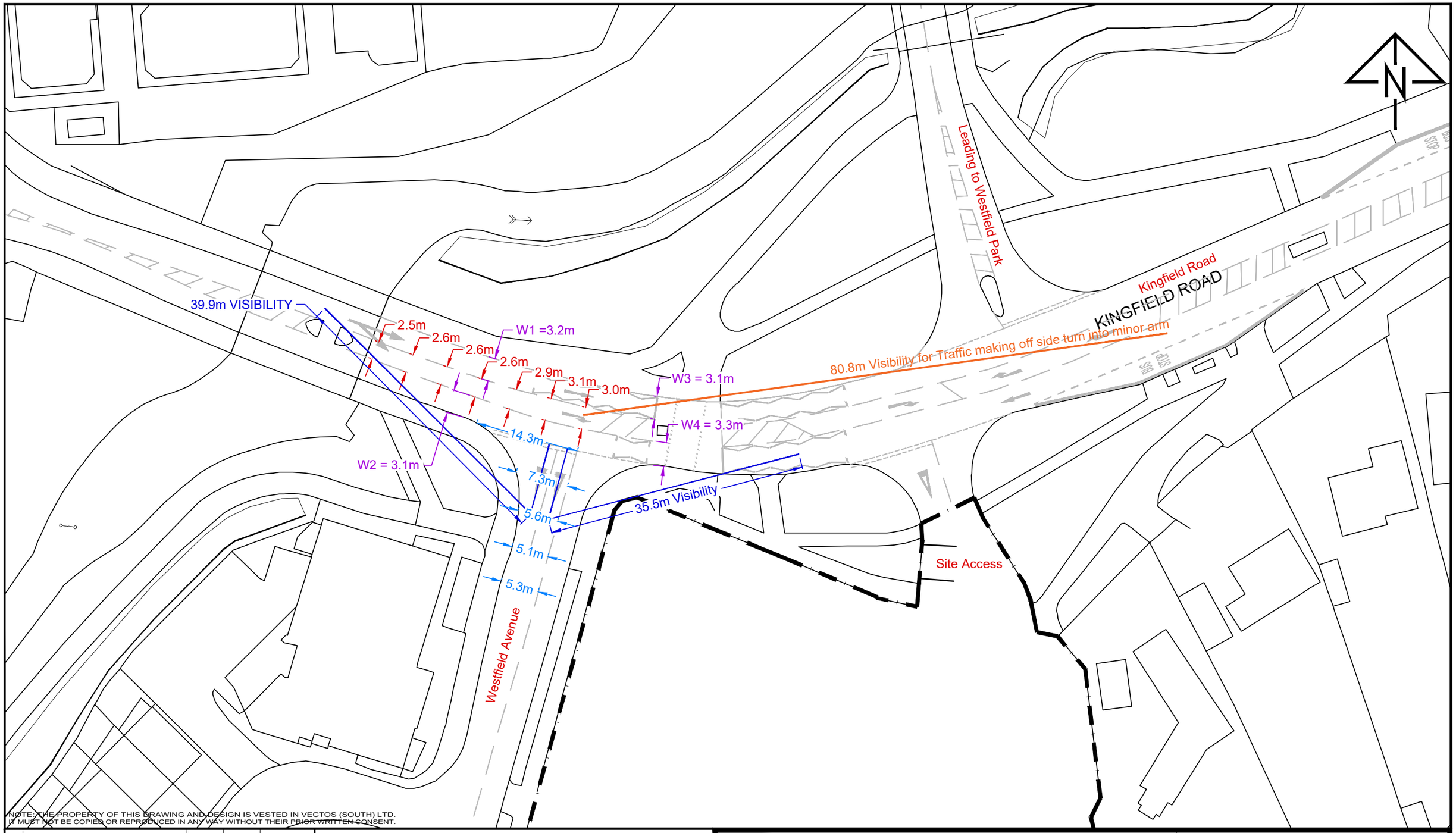
13:45 - 14:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	110	27	538	0.204	110	0.4	0.3	8.428	A
B-A	16	4	208	0.078	16	0.1	0.1	18.776	C
C-AB	75	19	570	0.131	75	0.2	0.2	7.270	A
C-A	658	165			658				
A-B	7	2			7				
A-C	594	149			594				

14:00 - 14:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	92	23	567	0.162	92	0.3	0.2	7.580	A
B-A	14	3	245	0.055	14	0.1	0.1	15.602	C
C-AB	62	16	598	0.105	63	0.2	0.1	6.730	A
C-A	551	138			551				
A-B	6	2			6				
A-C	498	124			498				

APPENDIX D



REV.	DETAILS	DRAWN	CHECKED	DATE
A	WIDTH OF CARRIAGEWAY MEASUREMENTS RE POSITIONED AS PER HA REQUEST	SCJ	DS	12/03/20

STATUS:
INFORMATION ONLY

PROJECT:
Egley Road, Woking

CLIENT:
Gold Developments

DRAWING TITLE:
PICADY Assessment -
Kingfield Road &
Westfield Avenue Junctions

vectos
transport planning specialists
Broad Quay House, Prince Street, Bristol, BS1 4DJ
t: 0117 905 8888 e: enquiries@vectos.co.uk

DRAWN:	CHECKED:	DATE:	SCALES:	DRAWING NUMBER:	REVISION:
SCJ	IS	18/04/19	1:500 @ A3	183923-PIC-03	A

APPENDIX E

Junctions 9

PICADY 9 - Priority Intersection Module

Version: 9.5.1.7462

Filename: Westfield Avenue_Kingfield Road Junction 200318.j9
Path: X:\Projects\180000\183923B - Woking FC - Post Submission\MODELLING\200318_Egley Rd Updated Models TD
Report generation date: 18/03/2020 11:59:20

Summary of junction performance

	AM					PM					Saturday Peak				
	Set ID	Queue (Veh)	Delay (s)	RFC	LOS	Set ID	Queue (Veh)	Delay (s)	RFC	LOS	Set ID	Queue (Veh)	Delay (s)	RFC	LOS
	2019														
Stream B-C	D1	1.8	21.15	0.65	C	D2	0.6	11.07	0.37	B	D3	0.5	9.55	0.33	A
Stream B-A		0.7	49.21	0.41	E		0.4	35.88	0.28	E		0.2	21.97	0.14	C
Stream C-AB		0.8	12.97	0.43	B		0.9	13.78	0.48	B		0.5	10.14	0.32	B
	2022														
Stream B-C	D4	2.3	25.61	0.70	D	D5	0.6	11.73	0.39	B	D6	0.5	9.95	0.34	A
Stream B-A		0.9	62.98	0.48	F		0.4	41.08	0.31	E		0.2	23.69	0.16	C
Stream C-AB		0.8	13.63	0.46	B		1.0	14.55	0.51	B		0.5	10.51	0.34	B
	2022 + Dev														
Stream B-C	D7	1.4	17.96	0.59	C	D8	0.3	8.44	0.25	A	D9	0.3	8.15	0.24	A
Stream B-A		0.5	41.27	0.36	E		0.1	23.83	0.09	C		0.1	19.11	0.05	C
Stream C-AB		0.5	11.18	0.33	B		0.5	10.69	0.34	B		0.3	9.24	0.25	A

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	Westfield Avenue / Kingfield Road
Location	Woking FC
Site number	
Date	17/07/2019
Version	
Status	(new file)
Identifier	
Client	Goldev Woking Ltd
Jobnumber	183923
Enumerator	VECTOS\frances.cathcartburn
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

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
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
D1	2019	AM	ONE HOUR	07:30	09:00	15	✓
D2	2019	PM	ONE HOUR	16:30	18:00	15	✓
D3	2019	Saturday Peak	ONE HOUR	12:45	14:15	15	✓
D4	2022	AM	ONE HOUR	07:30	09:00	15	✓
D5	2022	PM	ONE HOUR	16:30	18:00	15	✓
D6	2022	Saturday Peak	ONE HOUR	12:45	14:15	15	✓
D7	2022 + Dev	AM	ONE HOUR	07:30	09:00	15	✓
D8	2022 + Dev	PM	ONE HOUR	16:30	18:00	15	✓
D9	2022 + Dev	Saturday Peak	ONE HOUR	12:45	14:15	15	✓

Analysis Set Details

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

2019, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		5.56	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	Kingfield Road (E)		Major
B	Westfield Avenue		Minor
C	Kingfield Road (W)		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Width for right turn (m)	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C - Kingfield Road (W)	6.35		✓	3.10	80.8	✓	6.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor arm type	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate flare length	Flare length (PCU)	Visibility to left (m)	Visibility to right (m)
B - Westfield Avenue	One lane plus flare	10.00	7.30	5.60	5.10	5.10	✓	3.00	39	36

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Stream	Intercept (Veh/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
B-A	451	0.081	0.205	0.129	0.292
B-C	758	0.114	0.289	-	-
C-B	682	0.260	0.260	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.

Streams may be combined, in which case capacity will be adjusted.

Values are shown for the first time segment only; they may differ for subsequent time segments.

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	2019	AM	ONE HOUR	07:30	09:00	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 (%)
A - Kingfield Road (E)		ONE HOUR	✓	662	100.000
B - Westfield Avenue		ONE HOUR	✓	336	100.000
C - Kingfield Road (W)		ONE HOUR	✓	934	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A - Kingfield Road (E)	B - Westfield Avenue	C - Kingfield Road (W)
From	A - Kingfield Road (E)	0	28	634
	B - Westfield Avenue	46	0	290
	C - Kingfield Road (W)	744	190	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Kingfield Road (E)	B - Westfield Avenue	C - Kingfield Road (W)
From	A - Kingfield Road (E)	0	0	2
	B - Westfield Avenue	0	0	0
	C - Kingfield Road (W)	2	1	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-C	0.65	21.15	1.8	C	266	399
B-A	0.41	49.21	0.7	E	42	63
C-AB	0.43	12.97	0.8	B	175	263
C-A					682	1023
A-B					26	39
A-C					582	873

Main Results for each time segment

07:30 - 07:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	218	55	592	0.369	216	0.0	0.6	9.517	A
B-A	35	9	233	0.148	34	0.0	0.2	18.006	C
C-AB	143	36	544	0.263	142	0.0	0.4	8.912	A
C-A	560	140			560				
A-B	21	5			21				
A-C	477	119			477				

07:45 - 08:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	261	65	554	0.470	260	0.6	0.9	12.161	B
B-A	41	10	189	0.219	41	0.2	0.3	24.264	C
C-AB	171	43	520	0.329	171	0.4	0.5	10.300	B
C-A	669	167			669				
A-B	25	6			25				
A-C	570	142			570				

08:00 - 08:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	319	80	491	0.650	316	0.9	1.8	20.144	C
B-A	51	13	124	0.408	49	0.3	0.6	47.103	E
C-AB	212	53	489	0.433	211	0.5	0.8	12.873	B
C-A	817	204			817				
A-B	31	8			31				
A-C	698	175			698				

08:15 - 08:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	319	80	489	0.654	319	1.8	1.8	21.150	C
B-A	51	13	123	0.411	51	0.6	0.7	49.213	E
C-AB	212	53	489	0.433	212	0.8	0.8	12.967	B
C-A	817	204			817				
A-B	31	8			31				
A-C	698	175			698				

08:30 - 08:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	261	65	552	0.472	264	1.8	0.9	12.654	B
B-A	41	10	188	0.220	43	0.7	0.3	24.977	C
C-AB	171	43	520	0.329	172	0.8	0.5	10.395	B
C-A	669	167			669				
A-B	25	6			25				
A-C	570	142			570				

08:45 - 09:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	218	55	591	0.369	220	0.9	0.6	9.728	A
B-A	35	9	233	0.149	35	0.3	0.2	18.258	C
C-AB	143	36	544	0.263	144	0.5	0.4	9.000	A
C-A	560	140			560				
A-B	21	5			21				
A-C	477	119			477				

2019, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		3.41	A

Junction Network Options

Driving side	Lighting
Left	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	2019	PM	ONE HOUR	16:30	18:00	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 (%)
A - Kingfield Road (E)		ONE HOUR	✓	650	100.000
B - Westfield Avenue		ONE HOUR	✓	207	100.000
C - Kingfield Road (W)		ONE HOUR	✓	939	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A - Kingfield Road (E)	B - Westfield Avenue	C - Kingfield Road (W)
From	A - Kingfield Road (E)	0	59	591
	B - Westfield Avenue	35	0	172
	C - Kingfield Road (W)	723	216	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Kingfield Road (E)	B - Westfield Avenue	C - Kingfield Road (W)
From	A - Kingfield Road (E)	0	0	1
	B - Westfield Avenue	0	0	0
	C - Kingfield Road (W)	1	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-C	0.37	11.07	0.6	B	158	237
B-A	0.28	35.88	0.4	E	32	48
C-AB	0.48	13.78	0.9	B	200	300
C-A					662	992
A-B					54	81
A-C					542	813

Main Results for each time segment

16:30 - 16:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	129	32	601	0.216	128	0.0	0.3	7.607	A
B-A	26	7	240	0.110	26	0.0	0.1	16.761	C
C-AB	163	41	553	0.294	161	0.0	0.4	9.135	A
C-A	544	136			544				
A-B	44	11			44				
A-C	445	111			445				

16:45 - 17:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	155	39	567	0.272	154	0.3	0.4	8.704	A
B-A	31	8	198	0.159	31	0.1	0.2	21.626	C
C-AB	195	49	530	0.368	194	0.4	0.6	10.698	B
C-A	649	162			649				
A-B	53	13			53				
A-C	531	133			531				

17:00 - 17:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	189	47	516	0.367	189	0.4	0.6	10.978	B
B-A	39	10	139	0.277	38	0.2	0.4	35.311	E
C-AB	243	61	504	0.482	241	0.6	0.9	13.647	B
C-A	791	198			791				
A-B	65	16			65				
A-C	651	163			651				

17:15 - 17:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	189	47	515	0.368	189	0.6	0.6	11.068	B
B-A	39	10	139	0.278	38	0.4	0.4	35.878	E
C-AB	243	61	504	0.482	243	0.9	0.9	13.784	B
C-A	791	198			791				
A-B	65	16			65				
A-C	651	163			651				

17:30 - 17:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	155	39	566	0.273	155	0.6	0.4	8.781	A
B-A	31	8	197	0.159	32	0.4	0.2	21.893	C
C-AB	195	49	530	0.368	196	0.9	0.6	10.831	B
C-A	649	162			649				
A-B	53	13			53				
A-C	531	133			531				

17:45 - 18:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	129	32	600	0.216	130	0.4	0.3	7.671	A
B-A	26	7	240	0.110	27	0.2	0.1	16.920	C
C-AB	163	41	554	0.294	163	0.6	0.4	9.244	A
C-A	544	136			544				
A-B	44	11			44				
A-C	445	111			445				

2019, Saturday Peak

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		2.44	A

Junction Network Options

Driving side	Lighting
Left	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
D3	2019	Saturday Peak	ONE HOUR	12:45	14:15	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 (%)
A - Kingfield Road (E)		ONE HOUR	✓	549	100.000
B - Westfield Avenue		ONE HOUR	✓	191	100.000
C - Kingfield Road (W)		ONE HOUR	✓	772	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A - Kingfield Road (E)	B - Westfield Avenue	C - Kingfield Road (W)
From	A - Kingfield Road (E)	0	24	525
	B - Westfield Avenue	25	0	166
	C - Kingfield Road (W)	619	153	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Kingfield Road (E)	B - Westfield Avenue	C - Kingfield Road (W)
From	A - Kingfield Road (E)	0	0	1
	B - Westfield Avenue	0	0	1
	C - Kingfield Road (W)	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-C	0.33	9.55	0.5	A	152	228
B-A	0.14	21.97	0.2	C	23	34
C-AB	0.32	10.14	0.5	B	140	211
C-A					568	852
A-B					22	33
A-C					482	723

Main Results for each time segment

12:45 - 13:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	125	31	624	0.200	124	0.0	0.2	7.176	A
B-A	19	5	274	0.069	19	0.0	0.1	14.086	B
C-AB	115	29	573	0.201	114	0.0	0.2	7.830	A
C-A	466	117			466				
A-B	18	5			18				
A-C	395	99			395				

13:00 - 13:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	149	37	598	0.250	149	0.2	0.3	8.009	A
B-A	22	6	239	0.094	22	0.1	0.1	16.589	C
C-AB	138	34	552	0.249	137	0.2	0.3	8.677	A
C-A	556	139			556				
A-B	22	5			22				
A-C	472	118			472				

13:15 - 13:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	183	46	560	0.326	182	0.3	0.5	9.509	A
B-A	28	7	191	0.144	27	0.1	0.2	21.887	C
C-AB	169	42	524	0.322	168	0.3	0.5	10.110	B
C-A	681	170			681				
A-B	26	7			26				
A-C	578	145			578				

13:30 - 13:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	183	46	560	0.326	183	0.5	0.5	9.546	A
B-A	28	7	191	0.144	28	0.2	0.2	21.966	C
C-AB	169	42	524	0.322	169	0.5	0.5	10.142	B
C-A	681	170			681				
A-B	26	7			26				
A-C	578	145			578				

13:45 - 14:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	149	37	598	0.250	150	0.5	0.3	8.048	A
B-A	22	6	239	0.094	23	0.2	0.1	16.658	C
C-AB	138	34	552	0.249	138	0.5	0.3	8.708	A
C-A	556	139			556				
A-B	22	5			22				
A-C	472	118			472				

14:00 - 14:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	125	31	624	0.200	125	0.3	0.3	7.225	A
B-A	19	5	274	0.069	19	0.1	0.1	14.145	B
C-AB	115	29	573	0.201	116	0.3	0.3	7.874	A
C-A	466	117			466				
A-B	18	5			18				
A-C	395	99			395				

2022, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		6.62	A

Junction Network Options

Driving side	Lighting
Left	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
D4	2022	AM	ONE HOUR	07:30	09:00	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 (%)
A - Kingfield Road (E)		ONE HOUR	✓	686	100.000
B - Westfield Avenue		ONE HOUR	✓	348	100.000
C - Kingfield Road (W)		ONE HOUR	✓	967	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A - Kingfield Road (E)	B - Westfield Avenue	C - Kingfield Road (W)
From	A - Kingfield Road (E)	0	29	657
	B - Westfield Avenue	48	0	300
	C - Kingfield Road (W)	770	197	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Kingfield Road (E)	B - Westfield Avenue	C - Kingfield Road (W)
From	A - Kingfield Road (E)	0	0	2
	B - Westfield Avenue	0	0	0
	C - Kingfield Road (W)	2	1	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-C	0.70	25.61	2.3	D	275	413
B-A	0.48	62.98	0.9	F	44	66
C-AB	0.46	13.63	0.8	B	182	273
C-A					705	1058
A-B					27	40
A-C					603	904

Main Results for each time segment

07:30 - 07:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	226	56	585	0.386	223	0.0	0.6	9.888	A
B-A	36	9	225	0.160	35	0.0	0.2	18.886	C
C-AB	148	37	540	0.275	147	0.0	0.4	9.134	A
C-A	580	145			580				
A-B	22	5			22				
A-C	495	124			495				

07:45 - 08:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	270	67	545	0.495	268	0.6	1.0	12.945	B
B-A	43	11	179	0.241	43	0.2	0.3	26.307	D
C-AB	178	44	514	0.345	177	0.4	0.5	10.655	B
C-A	692	173			692				
A-B	26	7			26				
A-C	591	148			591				

08:00 - 08:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	330	83	473	0.698	326	1.0	2.1	23.648	C
B-A	53	13	111	0.478	51	0.3	0.8	58.389	F
C-AB	220	55	484	0.455	219	0.5	0.8	13.511	B
C-A	844	211			844				
A-B	32	8			32				
A-C	723	181			723				

08:15 - 08:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	330	83	469	0.704	330	2.1	2.3	25.610	D
B-A	53	13	109	0.484	53	0.8	0.9	62.979	F
C-AB	220	55	485	0.455	220	0.8	0.8	13.632	B
C-A	844	211			844				
A-B	32	8			32				
A-C	723	181			723				

08:30 - 08:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	270	67	542	0.498	275	2.3	1.0	13.704	B
B-A	43	11	178	0.242	45	0.9	0.3	27.475	D
C-AB	178	44	514	0.345	179	0.8	0.5	10.767	B
C-A	692	173			692				
A-B	26	7			26				
A-C	591	148			591				

08:45 - 09:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	226	56	584	0.387	227	1.0	0.6	10.142	B
B-A	36	9	225	0.161	37	0.3	0.2	19.198	C
C-AB	148	37	540	0.275	149	0.5	0.4	9.231	A
C-A	580	145			580				
A-B	22	5			22				
A-C	495	124			495				

2022, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		3.67	A

Junction Network Options

Driving side	Lighting
Left	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
D5	2022	PM	ONE HOUR	16:30	18:00	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 (%)
A - Kingfield Road (E)		ONE HOUR	✓	673	100.000
B - Westfield Avenue		ONE HOUR	✓	214	100.000
C - Kingfield Road (W)		ONE HOUR	✓	973	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A - Kingfield Road (E)	B - Westfield Avenue	C - Kingfield Road (W)
From	A - Kingfield Road (E)	0	61	612
	B - Westfield Avenue	36	0	178
	C - Kingfield Road (W)	749	224	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Kingfield Road (E)	B - Westfield Avenue	C - Kingfield Road (W)
From	A - Kingfield Road (E)	0	0	1
	B - Westfield Avenue	0	0	0
	C - Kingfield Road (W)	1	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-C	0.39	11.73	0.6	B	163	245
B-A	0.31	41.08	0.4	E	33	50
C-AB	0.51	14.55	1.0	B	208	312
C-A					685	1027
A-B					56	84
A-C					562	842

Main Results for each time segment

16:30 - 16:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	134	34	595	0.225	133	0.0	0.3	7.769	A
B-A	27	7	232	0.117	27	0.0	0.1	17.457	C
C-AB	169	42	549	0.307	167	0.0	0.4	9.383	A
C-A	564	141			564				
A-B	46	11			46				
A-C	461	115			461				

16:45 - 17:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	160	40	560	0.286	160	0.3	0.4	8.975	A
B-A	32	8	188	0.172	32	0.1	0.2	23.007	C
C-AB	202	51	525	0.385	202	0.4	0.6	11.104	B
C-A	672	168			672				
A-B	55	14			55				
A-C	550	138			550				

17:00 - 17:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	196	49	504	0.389	195	0.4	0.6	11.611	B
B-A	40	10	127	0.311	39	0.2	0.4	40.182	E
C-AB	254	63	501	0.506	252	0.6	1.0	14.377	B
C-A	818	204			818				
A-B	67	17			67				
A-C	674	168			674				

17:15 - 17:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	196	49	503	0.390	196	0.6	0.6	11.732	B
B-A	40	10	127	0.312	40	0.4	0.4	41.076	E
C-AB	254	63	501	0.506	254	1.0	1.0	14.550	B
C-A	818	204			818				
A-B	67	17			67				
A-C	674	168			674				

17:30 - 17:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	160	40	559	0.286	161	0.6	0.4	9.074	A
B-A	32	8	188	0.172	33	0.4	0.2	23.421	C
C-AB	202	51	525	0.385	204	1.0	0.6	11.264	B
C-A	672	168			672				
A-B	55	14			55				
A-C	550	138			550				

17:45 - 18:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	134	34	594	0.226	134	0.4	0.3	7.842	A
B-A	27	7	232	0.117	27	0.2	0.1	17.645	C
C-AB	169	42	549	0.307	170	0.6	0.5	9.504	A
C-A	564	141			564				
A-B	46	11			46				
A-C	461	115			461				

2022, Saturday Peak

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		2.54	A

Junction Network Options

Driving side	Lighting
Left	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
D6	2022	Saturday Peak	ONE HOUR	12:45	14:15	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 (%)
A - Kingfield Road (E)		ONE HOUR	✓	570	100.000
B - Westfield Avenue		ONE HOUR	✓	198	100.000
C - Kingfield Road (W)		ONE HOUR	✓	801	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A - Kingfield Road (E)	B - Westfield Avenue	C - Kingfield Road (W)
From	A - Kingfield Road (E)	0	25	545
	B - Westfield Avenue	26	0	172
	C - Kingfield Road (W)	642	159	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Kingfield Road (E)	B - Westfield Avenue	C - Kingfield Road (W)
From	A - Kingfield Road (E)	0	0	1
	B - Westfield Avenue	0	0	1
	C - Kingfield Road (W)	1	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-C	0.34	9.95	0.5	A	158	237
B-A	0.16	23.69	0.2	C	24	36
C-AB	0.34	10.51	0.5	B	146	219
C-A					589	883
A-B					23	34
A-C					500	750

Main Results for each time segment

12:45 - 13:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	129	32	619	0.209	128	0.0	0.3	7.320	A
B-A	20	5	267	0.073	19	0.0	0.1	14.543	B
C-AB	120	30	569	0.210	119	0.0	0.3	7.977	A
C-A	483	121			483				
A-B	19	5			19				
A-C	410	103			410				

13:00 - 13:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	155	39	592	0.261	154	0.3	0.3	8.223	A
B-A	23	6	230	0.101	23	0.1	0.1	17.360	C
C-AB	143	36	547	0.261	143	0.3	0.3	8.891	A
C-A	577	144			577				
A-B	22	6			22				
A-C	490	122			490				

13:15 - 13:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	189	47	552	0.343	189	0.3	0.5	9.901	A
B-A	29	7	181	0.158	28	0.1	0.2	23.583	C
C-AB	175	44	518	0.339	175	0.3	0.5	10.475	B
C-A	706	177			706				
A-B	28	7			28				
A-C	600	150			600				

13:30 - 13:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	189	47	551	0.344	189	0.5	0.5	9.946	A
B-A	29	7	181	0.159	29	0.2	0.2	23.691	C
C-AB	175	44	518	0.339	175	0.5	0.5	10.512	B
C-A	706	177			706				
A-B	28	7			28				
A-C	600	150			600				

13:45 - 14:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	155	39	591	0.262	155	0.5	0.4	8.270	A
B-A	23	6	230	0.101	24	0.2	0.1	17.446	C
C-AB	143	36	547	0.261	144	0.5	0.4	8.932	A
C-A	577	144			577				
A-B	22	6			22				
A-C	490	122			490				

14:00 - 14:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	129	32	619	0.209	130	0.4	0.3	7.367	A
B-A	20	5	266	0.074	20	0.1	0.1	14.614	B
C-AB	120	30	569	0.210	120	0.4	0.3	8.026	A
C-A	483	121			483				
A-B	19	5			19				
A-C	410	103			410				

2022 + Dev, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		4.23	A

Junction Network Options

Driving side	Lighting
Left	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
D7	2022 + Dev	AM	ONE HOUR	07:30	09:00	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 (%)
A - Kingfield Road (E)		ONE HOUR	✓	683	100.000
B - Westfield Avenue		ONE HOUR	✓	307	100.000
C - Kingfield Road (W)		ONE HOUR	✓	905	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A - Kingfield Road (E)	B - Westfield Avenue	C - Kingfield Road (W)
From	A - Kingfield Road (E)	0	28	655
	B - Westfield Avenue	44	0	263
	C - Kingfield Road (W)	763	142	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Kingfield Road (E)	B - Westfield Avenue	C - Kingfield Road (W)
From	A - Kingfield Road (E)	0	0	2
	B - Westfield Avenue	0	0	0
	C - Kingfield Road (W)	2	1	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-C	0.59	17.96	1.4	C	241	362
B-A	0.36	41.27	0.5	E	40	61
C-AB	0.33	11.18	0.5	B	130	196
C-A					700	1050
A-B					26	39
A-C					601	902

Main Results for each time segment

07:30 - 07:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	198	50	588	0.337	196	0.0	0.5	9.136	A
B-A	33	8	240	0.138	32	0.0	0.2	17.330	C
C-AB	107	27	540	0.198	106	0.0	0.2	8.277	A
C-A	574	144			574				
A-B	21	5			21				
A-C	493	123			493				

07:45 - 08:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	236	59	551	0.429	235	0.5	0.7	11.383	B
B-A	40	10	197	0.201	39	0.2	0.2	22.760	C
C-AB	128	32	514	0.249	127	0.2	0.3	9.307	A
C-A	686	171			686				
A-B	25	6			25				
A-C	589	147			589				

08:00 - 08:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	290	72	491	0.590	287	0.7	1.4	17.424	C
B-A	48	12	136	0.357	47	0.2	0.5	40.186	E
C-AB	157	39	479	0.327	156	0.3	0.5	11.142	B
C-A	840	210			840				
A-B	31	8			31				
A-C	721	180			721				

08:15 - 08:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	290	72	490	0.592	289	1.4	1.4	17.957	C
B-A	48	12	135	0.358	48	0.5	0.5	41.267	E
C-AB	157	39	479	0.327	157	0.5	0.5	11.183	B
C-A	840	210			840				
A-B	31	8			31				
A-C	721	180			721				

08:30 - 08:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	236	59	549	0.431	239	1.4	0.8	11.698	B
B-A	40	10	197	0.201	41	0.5	0.3	23.213	C
C-AB	128	32	514	0.249	128	0.5	0.3	9.352	A
C-A	686	171			686				
A-B	25	6			25				
A-C	589	147			589				

08:45 - 09:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	198	50	587	0.337	199	0.8	0.5	9.302	A
B-A	33	8	239	0.138	34	0.3	0.2	17.521	C
C-AB	107	27	540	0.198	107	0.3	0.2	8.326	A
C-A	574	144			574				
A-B	21	5			21				
A-C	493	123			493				

2022 + Dev, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		1.92	A

Junction Network Options

Driving side	Lighting
Left	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
D8	2022 + Dev	PM	ONE HOUR	16:30	18:00	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 (%)
A - Kingfield Road (E)		ONE HOUR	✓	594	100.000
B - Westfield Avenue		ONE HOUR	✓	140	100.000
C - Kingfield Road (W)		ONE HOUR	✓	863	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A - Kingfield Road (E)	B - Westfield Avenue	C - Kingfield Road (W)
From	A - Kingfield Road (E)	0	34	560
	B - Westfield Avenue	14	0	126
	C - Kingfield Road (W)	705	158	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Kingfield Road (E)	B - Westfield Avenue	C - Kingfield Road (W)
From	A - Kingfield Road (E)	0	0	1
	B - Westfield Avenue	0	0	0
	C - Kingfield Road (W)	1	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-C	0.25	8.44	0.3	A	116	173
B-A	0.09	23.83	0.1	C	13	19
C-AB	0.34	10.69	0.5	B	145	218
C-A					647	970
A-B					31	47
A-C					514	771

Main Results for each time segment

16:30 - 16:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	95	24	631	0.150	94	0.0	0.2	6.695	A
B-A	11	3	255	0.041	10	0.0	0.0	14.694	B
C-AB	119	30	564	0.211	118	0.0	0.3	8.054	A
C-A	531	133			531				
A-B	26	6			26				
A-C	422	105			422				

16:45 - 17:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	113	28	604	0.188	113	0.2	0.2	7.328	A
B-A	13	3	218	0.058	13	0.0	0.1	17.519	C
C-AB	142	36	542	0.262	142	0.3	0.4	8.995	A
C-A	634	158			634				
A-B	31	8			31				
A-C	503	126			503				

17:00 - 17:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	139	35	565	0.245	138	0.2	0.3	8.424	A
B-A	15	4	167	0.093	15	0.1	0.1	23.763	C
C-AB	174	44	511	0.341	174	0.4	0.5	10.650	B
C-A	776	194			776				
A-B	37	9			37				
A-C	617	154			617				

17:15 - 17:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	139	35	565	0.246	139	0.3	0.3	8.443	A
B-A	15	4	166	0.093	15	0.1	0.1	23.834	C
C-AB	174	44	511	0.341	174	0.5	0.5	10.690	B
C-A	776	194			776				
A-B	37	9			37				
A-C	617	154			617				

17:30 - 17:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	113	28	604	0.188	114	0.3	0.2	7.352	A
B-A	13	3	218	0.058	13	0.1	0.1	17.578	C
C-AB	142	36	542	0.262	143	0.5	0.4	9.038	A
C-A	634	158			634				
A-B	31	8			31				
A-C	503	126			503				

17:45 - 18:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	95	24	631	0.150	95	0.2	0.2	6.720	A
B-A	11	3	255	0.041	11	0.1	0.0	14.744	B
C-AB	119	30	564	0.211	119	0.4	0.3	8.099	A
C-A	531	133			531				
A-B	26	6			26				
A-C	422	105			422				

2022 + Dev, Saturday Peak

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		1.61	A

Junction Network Options

Driving side	Lighting
Left	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
D9	2022 + Dev	Saturday Peak	ONE HOUR	12:45	14:15	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 (%)
A - Kingfield Road (E)		ONE HOUR	✓	557	100.000
B - Westfield Avenue		ONE HOUR	✓	133	100.000
C - Kingfield Road (W)		ONE HOUR	✓	729	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A - Kingfield Road (E)	B - Westfield Avenue	C - Kingfield Road (W)
From	A - Kingfield Road (E)	0	21	536
	B - Westfield Avenue	9	0	124
	C - Kingfield Road (W)	610	119	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Kingfield Road (E)	B - Westfield Avenue	C - Kingfield Road (W)
From	A - Kingfield Road (E)	0	0	1
	B - Westfield Avenue	0	0	1
	C - Kingfield Road (W)	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-C	0.24	8.15	0.3	A	114	171
B-A	0.05	19.11	0.1	C	8	12
C-AB	0.25	9.24	0.3	A	109	164
C-A					560	840
A-B					19	29
A-C					492	738

Main Results for each time segment

12:45 - 13:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	93	23	638	0.146	93	0.0	0.2	6.598	A
B-A	7	2	276	0.025	7	0.0	0.0	13.372	B
C-AB	90	22	571	0.157	89	0.0	0.2	7.449	A
C-A	459	115			459				
A-B	16	4			16				
A-C	404	101			404				

13:00 - 13:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	111	28	613	0.182	111	0.2	0.2	7.172	A
B-A	8	2	243	0.033	8	0.0	0.0	15.304	C
C-AB	107	27	550	0.194	107	0.2	0.2	8.115	A
C-A	548	137			548				
A-B	19	5			19				
A-C	482	120			482				

13:15 - 13:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	137	34	578	0.236	136	0.2	0.3	8.127	A
B-A	10	2	198	0.050	10	0.0	0.1	19.087	C
C-AB	131	33	521	0.252	131	0.2	0.3	9.223	A
C-A	672	168			672				
A-B	23	6			23				
A-C	590	148			590				

13:30 - 13:45

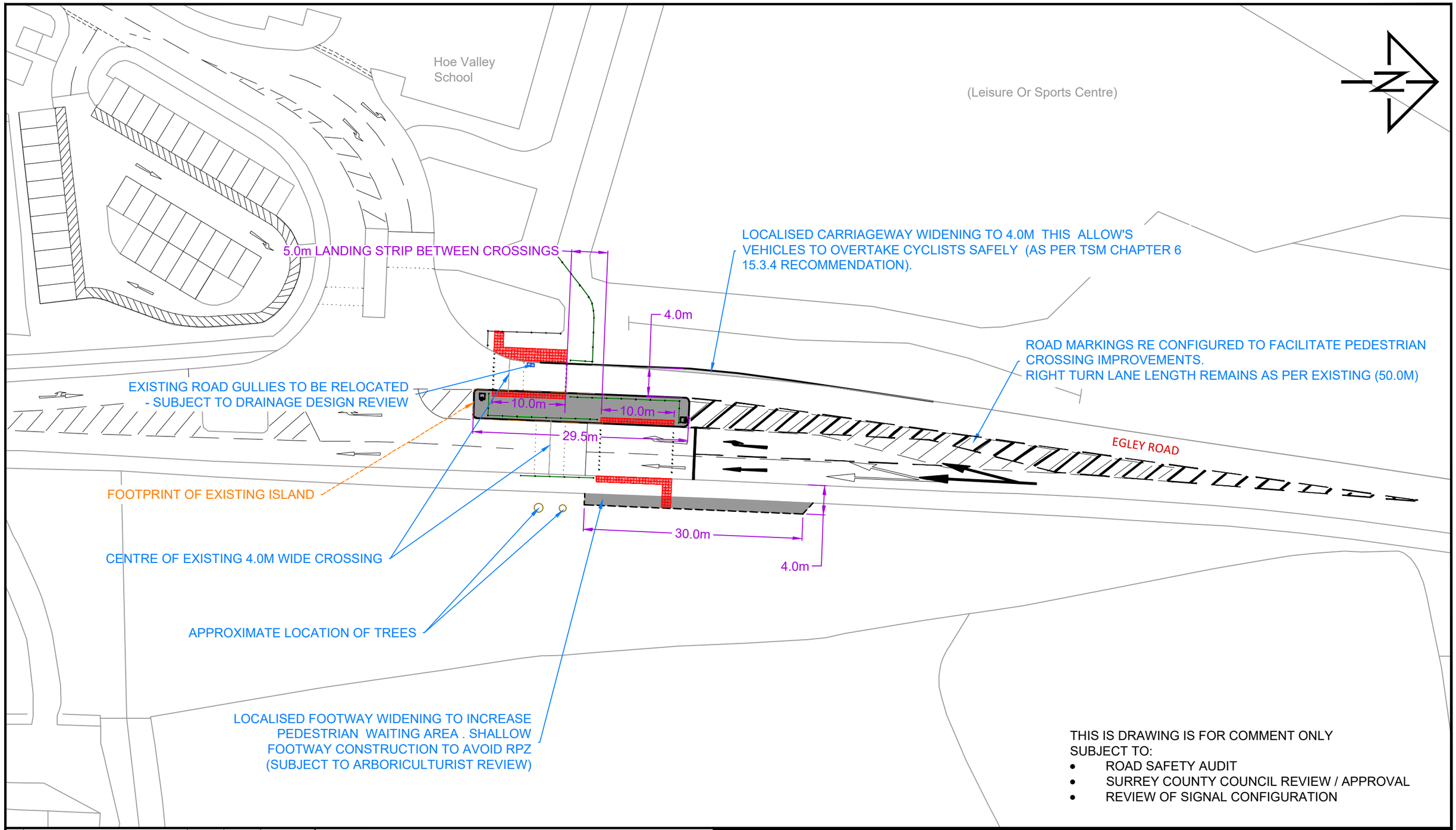
Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	137	34	578	0.236	137	0.3	0.3	8.147	A
B-A	10	2	198	0.050	10	0.1	0.1	19.109	C
C-AB	131	33	521	0.252	131	0.3	0.3	9.238	A
C-A	672	168			672				
A-B	23	6			23				
A-C	590	148			590				

13:45 - 14:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	111	28	613	0.182	112	0.3	0.2	7.189	A
B-A	8	2	243	0.033	8	0.1	0.0	15.328	C
C-AB	107	27	550	0.194	107	0.3	0.2	8.136	A
C-A	548	137			548				
A-B	19	5			19				
A-C	482	120			482				

14:00 - 14:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	93	23	637	0.146	94	0.2	0.2	6.621	A
B-A	7	2	276	0.025	7	0.0	0.0	13.398	B
C-AB	90	22	571	0.157	90	0.2	0.2	7.476	A
C-A	459	115			459				
A-B	16	4			16				
A-C	404	101			404				



THIS IS DRAWING IS FOR COMMENT ONLY
SUBJECT TO:

- ROAD SAFETY AUDIT
- SURREY COUNTY COUNCIL REVIEW / APPROVAL
- REVIEW OF SIGNAL CONFIGURATION

REV.	DETAILS	DRAWN	CHECKED	DATE
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STATUS:
INFORMATION ONLY

PROJECT:
Egley Road, Woking

CLIENT:
Gold Developments

DRAWING TITLE:
Proposed Improvements to Signalised Controlled Crossing at Egley Road and Hoe Valley School - (Offsite improvement Works)

vectos
5th Floor, 4 Colston Avenue, Bristol, BS1 4ST
t: 0117 203 5240 e: enquiries@vectos.co.uk

DRAWN:	CHECKED:	DATE:	SCALES:	DRAWING NUMBER:	REVISION:
SCJ	IS	18/04/19	1:250 @ A3	183923-B04	-