Tunbridge Wells Local Plan - Local Junction Capacity Sensitivity Testing Technical Note

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1. Introduction

The Local Plan Evidence Base: Transport Assessment Report Update for the PreSubmission Local Plan (Transport Modelling report), dated March 2021 provides details of the AM and PM SATURN model that supports the strategic modelling for the Tunbridge Wells Borough Pre-Submission Local Plan. Kent County Council (KCC) and National Highways (NH – formerly Highways England) requested that sensitivity testing of the Report Update be undertaken using the TRICS rather than TEMPRO approach. A Transport Assessment Addendum 2 (TAA2) report (October 2021) was produced. This Technical Note has been prepared in reponse to the comments from on the modelling results set out in the TAA Rev2 report dated 22.10.2021. This note has been prepared with reference to the discussions at a meetings with KCC, NH and TWBC on 27.01.2022 and 24.02.2022.

The junctions discussed within this Note have been identified by KCC/NH as those on the road network within the Transport Modelling Report study area that are most likely to require capacity improvements to accommodate Local Plan growth at the strategic level, based on the outputs of the strategic traffic modelling. The potential junction improvements have been developed to demonstrate that the traffic impacts from the proposed level of development are capable of mitigation but does not necessarily advocate a preferred junction design. In fact, by far the preferred approaches of the Highway Authorities are to consider active travel and public transport options first, with the addition of highway capacity only where required , as demonstrated by the Transport Modelling Report A work undertaken to date.

The traffic modelling work undertaken, including that in the Transport Assessment Report (September 2019), Transport Modelling Report (March 2021) and the sensitivity testing in the TAA2 (October 2021), and as set out within this Note, assesses the cumulative impact of all the proposed development in the Local Plan. It demonstrates that the overall Local Plan growth, if accompanied by the appropriate mitigation measures, can be accommodated on the network without causing severe traffic impacts. This Note is not designed to test or propose site specific mitigation to deal with the effects of individual development sites. The transport impacts of each of the Local Plan developments will still have to be assessed through Transport Assessments accompanying planning applications in accordance with NPPF guidance.

This note also is not focussed on fixing underlying existing transport issues on the network in the area. The focus on this work, in line with NPPF guidance, is to mitigate severe impacts and (where the highway is operating over capacity to) deliver a 'nil-detriment' scheme for the Local Plan that means performance is of a similar level to the Reference Case scenario. There are significant contributions identified towards active travel and public transport provision as part of the mitigations, as included in the Council's Infrastructure Delivery Plan – for example in Royal Tunbridge Wells and at the Strategic Sites. However, in order to address underlying existing transport issues (i.e. beyond that caused through Local Plan growth) it will be necessary for wider planning requirements to be incorporated in the detailed planning stage, including aspects of the Local Walking and Cycling infrastructure Plan

(LCWIP) and Bus Service Improvement Plan (BSIP) which go beyond that to be funded by (and to mitigate) development, to allow for a holistic solution that addresses underlying issues, but this will require additional budget and planning that is beyond the Local Plan process.

Mitigation Design and Costs

The potential mitigation measures set out within this Note are high-level concept designs and are subject to further design work including technical and safety audit. It has been agreed with KCC and HE that this is proportionate for the Local Plan stage but is acknowledged that the further design and safety audit work will be required at planning application stage. All proposed flare lengths and new/improved traffic lanes shown on the concept design plans have a Design Manual for Road and Bridges (DMRB) standard carriageway width of 3.65m metres. This is achieved through the provision of new carriageway, thus ensuring that the existing lane widths on the unaffected links are maintained.

The high-level cost estimates are outlined in Sweco's TAA Rev2 report dated 22.10.2021. They exclude costs associated with the diversion of statutory undertakers' apparatus and detailed design. However, it is not proportionate at the strategic Local Plan making stage to go to this level of detail, which will be addressed at planning application stage. Furthermore, costs will vary depending on the level of construction, electrical or survey work required, as well as the equipment suppliers and contractors may use. Notwithstanding, they are considered to be generous estimates of reasonable costs appropriate for this stage of the Local Plan process.

Strategic Model Original Scenarios

The full detail of these sensitivity test scenarios, including locations of changes, can be found in Sweco's TAA Rev2 report dated 22.10.2021. A summary of the strategic model scenarios used for analysis in this Technical Note is as follows:

- **Reference Case (RC) –** Base network with agreed junction upgrades to take account of committed developer mitigations as part of committed developments already modelled in the demand. Demand uplifted using TRICS for sites in Tunbridge Wells borough and TEMPRO for areas outside of Tunbridge Wells borough.
- **Local Plan (LP) -** No change to RC highway network. The demand has been uplifted based on the agreed TRICS based Local Plan trip rates both for the smaller sites and the 10% reduced rates for the larger Paddock Wood and Tudeley sites. No changes have been made to existing development demand or trip rates in the model, including existing Tudeley and Paddock Wood areas.
- **Local Plan Highways (LPH - Local Plan scenario including highways mitigation measures only)** – No demand changes as compared to the LP scenario. This scenario highway network has been amended to take account the highway mitigation identified to mitigate the impacts identified from LP scenario.
- **Local Plan Mitigation Scenario (LPMS - Local Plan scenario including highways mitigation measures and mode shift from Sustainable Transport Zone)** – This scenario includes wider traffic demand reductions in Tunbridge Wells borough beyond Local Plan sites based on wider investment in sustainable transport leading to modal shift from car, as outlined in TAA Rev 2 note. The network is the same as the LP highway network scenario, except for additional signals at the Sandhurst Road and Sandrock Road junctions on the A264 Pembury Road and also bus only provision on Calverley Park Gardens. This is all to aid bus priority on the A264 Pembury Road corridor.

As part of the detailed junction analysis in this report, our reporting focuses on the RC, LP and LPMS scenarios. This is to reflect the LPMS has KCC support on measures to increase modal shift across the borough and in parallel, work has recently been undertaken between TWBC and KCC to ensure this will happen through the wider LCWIP and BSIP processes.

Model Years and Mitigation Implementation Year

The full model year is 2038, with an interim model year also tested for 2031. This was agreed with both NH and KCC in advance of the modelling. The 2038 modelling has been used to understand if there is a need for changes to the transport network as a result of Local Plan trip growth. When mitigation is required, analysis has been undertaken with an interim year highway model that includes all Local Plan development up to 2031.

The analysis then identifies if the issue requires mitigating before 2031 or between 2031 and 2038. Where the Local Plan 2031 scenario shows greater congestion and delay on the highway network in the strategic model compared to the Reference Case 2038, it is identified that the mitigation scheme should be in place by 2031. Where this is not the case, it is identified the mitigation needs to come forward between 2031 and 2038.

2. Overview of Junction Modelling Undertaken

The junctions identified by KCC/NH as having significant/severe impact with the Local Plan flows applied have been assessed in greater detail with local junction modelling: i.e. have been subjected to sensitivity testing. The findings from the local junction modelling have been used to confirm potential mitigation solutions at the junctions with the aim to produce nil detriment to the junction's capacity performance when compared to the Reference Case scenario. The junctions have been modelled using industry standard software. Junctions9 software has been used for modelling roundabouts, specifically the Arcady model for roundabouts. The traffic signal junctions have been modelled using Linsig3 software.

The output data from the modelling analysis undertaken is included as **Appendix A a**t the end of this Note.

Junction Capacity Appraisal – Definition of Modelling Terms

Volume to Capacity ratio (V/C) – This comes from the Strategic Saturn highway model. It is a measure of the performance of a junction – over 95% a junction is generally agreed to be above capacity. There are, as is common in the Kent and much of the South East, many junctions with Volume / Capacity close to or greater than 95% in the Reference Case. Where the Volume / Capacity is similar or at a lower level in the Local Plan scenario, mitigation measures are not proposed – the Transport Assessment for the Local Plan focuses on the measures which need to be secured as a result of the allocated development sites for severe impacts only.

ARCADY LOS = Level of Service – The Junction modelling software refers to Level of Service values contained in the Highway Capacity Manual (HCM 2000). In this instance, model outputs show the unsignalised level of service values for each peak hour, based on the average delay per arriving vehicle. The LOS system uses the following alphabetised categories:

- A = Free flow
- B = Reasonably free flow
- C = Stable flow
- D = Approaching unstable flow
- E = Unstable flow
- F = Forced or breakdown flow

Queue Length – The queue lengths stated in the capacity assessment results represent the average maximum queue lengths in Passenger Car Units (PCUs) on each approach arm across the peak hour. They are therefore indicative of queuing extents at the busiest point of the peak hour and are not representative of average conditions. This applies to all models used.

ARCADY RFC = Ratio of Flow to Capacity – The ratio of flow to capacity provides a measure of the utilised capacity of a junction approach arm. Arms exceeding a ratio of 0.85 (i.e. 85% capacity utilised) are considered to be approaching capacity and characteristically have light-to-moderate levels of queued traffic flow. Arms exceeding a ratio of 1.00 (i.e. 100% capacity utilised) are considered to be over capacity and are characterised as having heavy volumes of queued traffic.

ARCADY results that exceed RFCs of 1.00 generate queue lengths that are subject to exponential growth. For this reason, queue lengths attributed to overcapacity approach arms should be seen as indicative rather than representative. The capacity assessment tables within this technical note use a colour-coding system to assist in appraisal:

- Arms with an RFC of less than 0.85 are coloured green
- Arms with an RFC between 0.85 and 0.99 are coloured amber
- Arms with an RFC of 1.00 or more are coloured red

LINSIG DOS = Degree of Saturation – The degree of saturation is an output from LINSIG which provides a measure of the utilised capacity of a signalised junction approach lane. It is directly comparable to the RFC outputs obtained from ARCADY assessments (see above). The colour-coding system used to categorise DOS in the model results tables is as follows:

- Lanes with a DOS of less than 85% are coloured green
- Lanes with a DOS between 85% and 99% are coloured amber
- Lanes with a DOS of 100% or more are coloured red

Derivation of Localised Modelling

The list of schemes agreed and set out in Section 3 onwards of this Technical Note for localised modelling was agreed at the meeting with KCC, NH and TWBC on 27.01.2022.

Traffic Flows for Localised Models

Strategic modelling has initially been used as an indicator to identify junctions that could be over capacity. Where junctions in potential need of mitigation have been identified, the traffic flows for the localised traffic models have been derived as follows:

1. Extract traffic flows from the strategic model for Reference Case and Local Plan scenarios
2. Input strategic model flows into the junction models. This will mean both traffic growth and any changes in network assignment will be taken into account.

This method has been adopted upon consultation with KCC and NH to ensure accuracy on future year junction demand.

Layout

There are no topographical surveys available for this analysis. As a result, Ordnance Survey mapping has been used to identify the geometric configuration for the mitigation solutions outlined within this Note.

3. Junction 8 A26 Woodgate Way/B2017 Tudeley Road/Tudeley Lane

Summary of Strategic Modelling Results and Reason for Mitigation

The proposed local plan growth will increase demand through this junction, mainly from the Tudeley Masterplan Site on the B2017 Tudeley Road. In the Local Plan scenario without mitigation this link is Volume-to-Capacity ratio (V/C) 108% in the AM peak and V/C 105% in the PM peak, as summarised in the table below.

	AM Peak											
	Reference Case 2038			Local Plan scenario without highway mitigations			Local Plan scenario including highways mitigation measures only			Local Plan scenario including highways mitigation measures and mode shift from Sustainable Transport Zone		
	Arm V/C	Flow pcu	Average Junction V/C	Arm V/C	Flow pcu	Average Junction V/C	Arm V/C	Flow pcu	Average Junction V/C	Arm V/C	Flow pcu	Average Junction V/C
A26 Woodgate Way (N)	95	1,267	87	84	1,115	93	61	808	76	61	809	74
B2017 Tudeley Road (E)	84	893	87	108	1,124	93	93	1,241	76	92	1,220	74
A26 Woodgate Way (SW)	87	1,054	87	93	1,037	93	70	814	76	66	779	74
Tudeley Lane (W)	56	233	87	65	231	93	20	98	76	13	65	74
	PM Peak											
	Reference Case 2038			Local Plan scenario without highway mitigations			Local Plan scenario including highways mitigation measures only			Local Plan scenario including highways mitigation measures and mode shift from Sustainable Transport Zone		
	Arm V/C	Flow pcu	Average Junction V/C	Arm V/C	Flow pcu	Average Junction V/C	Arm V/C	Flow pcu	Average Junction V/C	Arm V/C	Flow pcu	Average Junction V/C
A26 Woodgate Way (N)	88	1,130	77	105	1,151	90	104	1,173	89	102	1,176	88
B2017 Tudeley Road (E)	39	436	77	26	326	90	24	322	89	22	290	88
A26 Woodgate Way (SW)	87	1,160	77	100	1,328	90	99	1,318	89	97	1,286	88
Tudeley Lane (W)	30	158	77	37	174	90	36	174	89	32	159	88

From the above table it can be seen that the SATURN Strategic modelling indicates that the A26 Woodgate Way (N) arm and the A26 Woodgate Way (SW) arms may still experience capacity issues in the PM peak hour in the mitigation scenarios. As a result, localised junction modelling has been undertaken to further understand the impact of the junction mitigation.

Localised Junction Model – Existing Junction Layout

Sweco have developed an ARCADY junction model to test the mitigation concept design in more detail. In order to demonstrate the impact of the mitigation solution, this analysis includes a review of the existing junction layout against future highway demand projections within the 2038 Reference Case and 2038 Local Plan scenarios.

The ARCADY model outputs for the current junction layout are set out in **Figure 3-1** below.

Figure 3-1 Arcady Results – Current Junction Layout and Future Year Demand (2038)

Summary Results

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	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
	Ref Case 2038							
1 - A26 North	2.7	7.03	0.72	A	2.0	5.83	0.66	A
2 - B2017 Tudeley Rd	10.0	39.16	0.93	E	0.7	5.53	0.42	A
3 - A26 south	3.0	9.39	0.74	A	2.3	6.57	0.69	A
4 - Five Oak Green Rd	0.6	8.15	0.36	A	0.2	5.09	0.19	A
	Local Plan 2038							
1 - A26 North	0.8	3.38	0.43	A	3.2	9.12	0.76	A
2 - B2017 Tudeley Rd	114.0	288.96	1.18	F	0.4	4.24	0.29	A
3 - A26 south	1.4	5.59	0.57	A	3.4	8.70	0.77	A
4 - Five Oak Green Rd	0.1	4.68	0.12	A	0.3	5.83	0.23	A
	Local Plan 2038 MS							
1 - A26 North	0.8	3.29	0.42	A	3.0	8.58	0.75	A
2 - B2017 Tudeley Rd	105.3	260.61	1.17	F	0.4	4.20	0.27	A
3 - A26 south	1.2	5.13	0.54	A	3.1	7.93	0.75	A
4 - Five Oak Green Rd	0.1	4.32	0.08	A	0.3	5.50	0.21	A

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

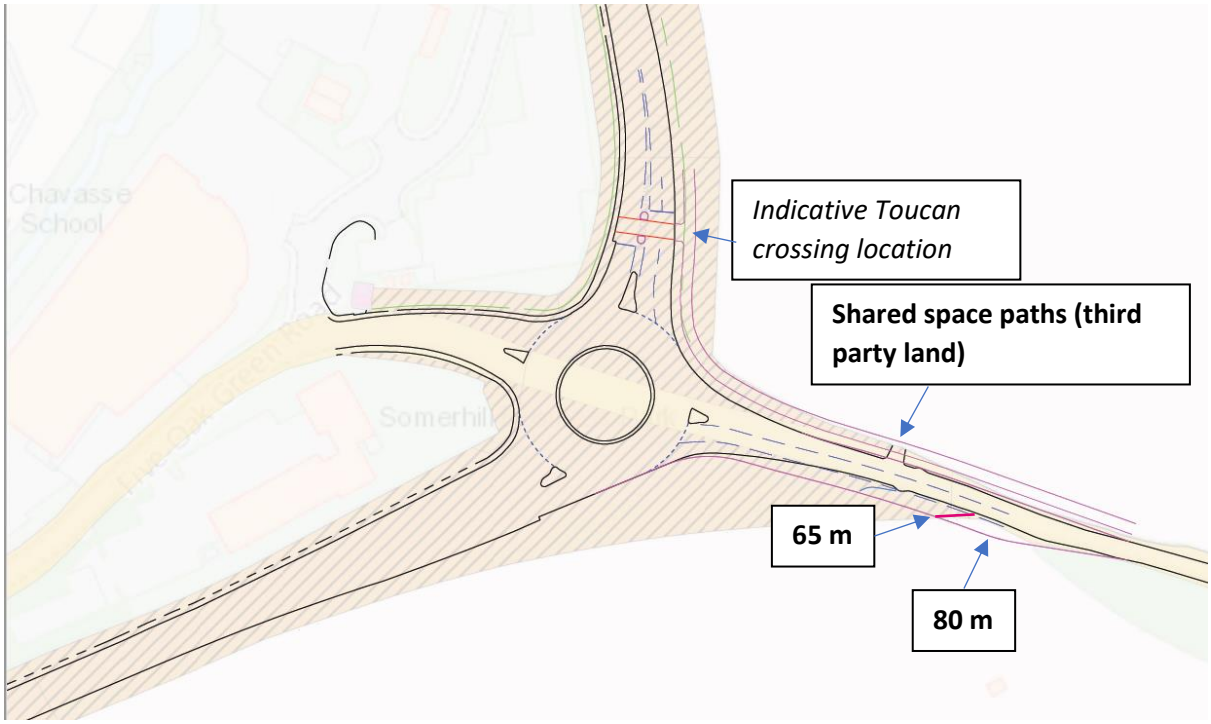
The results show that in the PM peak, there are no capacity issues predicted at this junction with a Level of Service (LoS) of A recorded in all scenarios. This is also the case for the A26 and Five Oak Green Road arms in the AM peak period. However, in all scenarios the B2017 Tudeley Road is shown to be operating at capacity in the Reference Case and over capacity with an RFC over 100% in the Local Plan scenarios, as highlighted in the LoS of F for this arm.

Potential Mitigation and Boundary Analysis

The mitigation measure identified to deliver improved infrastructure performance when considering additional future growth is to provide additional capacity on the B2017 Tudeley Road approach to the junction. The potential mitigation solution identified is the provision of a second lane on the approach to the roundabout. This is illustrated in the **Figure 3-2** below.

Future options for improvements to walking and cycling accessibility at this junction have also been identified, in the form of a new link along the northern edge of Tudeley Road with a crossing over the A26 Woodgate Way (N) arm. The implementation of such measures would facilitate walking and cycling between the Tudeley Masterplan site and Tonbridge.

Figure 3-2 Junction 8 – A26 / B2017 Mitigation Concept Design



The orange shaded area denotes land owned and publicly maintainable by KCC Highways, as obtained from KCC. Originally, we proposed an 80 metre flare, but the information received from KCC has indicated that a flare of this length may require third party land acquisition. As indicated on the drawing above, the carriageway widening that could be achieved on Tudeley Road, within the existing highway boundary, is a 65m flare. We have assumed the running lanes on Tudeley Road to be 3.65m each, and the westbound lane has been widened marginally on the north side to achieve 3.65m. We have tested the above concept design in an ARCADY junction model as discussed below.

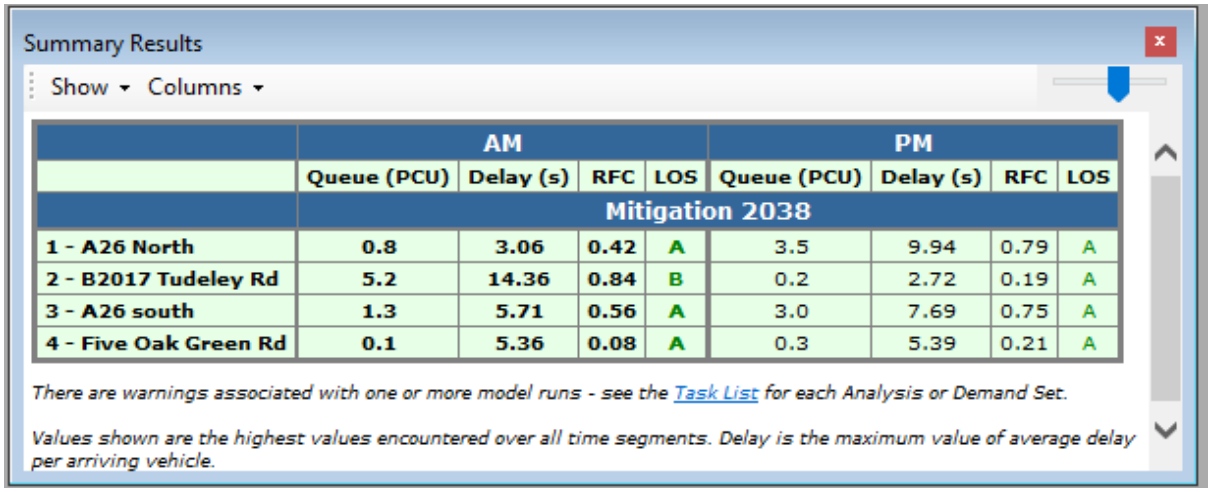
We have also added a toucan crossing 20 metres back on the A26 (N) arm to reflect the need to connect Tonbridge with Tudeley for people walking and cycling. The shared path on the eastern arm has a 2m buffer as recommended by LTN1/20 and 2.5m on the northern arm (50mph and National Speed Limit respectively). For the purposes of the modelling, we have assumed this crossing to have the equivalent demand of 100 pedestrians an hour.

It is acknowledged that third party land would be required in order to provide the walking and cycling improvements suggested above. However, as the third party land is under the ownership of the Hadlow Estate, which is promoting Tudeley village, these works could be provided through the masterplan, with the final design being established through the planning application process. The Hadlow Estate has confirmed that this land would be available for the improvements, and these proposals are set out and are a commitment as part of the Strategic Sites Infrastructure Framework prepared part of the infrastructure master planning for Tudeley (and Paddock Wood including east Capel). This scheme is being managed by the Masterplan team and their consultants.

Localised Junction Model – Mitigation Solution

The result of the ARCADY model of the mitigation layout outlined above are summarised in **Figure 3-3** below.

Figure 3-3 – Arcady Results: Mitigation Junction Layout (2038 Future Year Demand)



Summary Results

Show ▾ Columns ▾

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
	Mitigation 2038							
1 - A26 North	0.8	3.06	0.42	A	3.5	9.94	0.79	A
2 - B2017 Tudeley Rd	5.2	14.36	0.84	B	0.2	2.72	0.19	A
3 - A26 south	1.3	5.71	0.56	A	3.0	7.69	0.75	A
4 - Five Oak Green Rd	0.1	5.36	0.08	A	0.3	5.39	0.21	A

There are warnings associated with one or more model runs - see the Task List for each Analysis or Demand Set.

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

The Tudeley Road arm LoS has fallen to B, with an RFC of 84 and a queue of just 15 PCUs. This represents a significant reduction in queueing and delay on the B2017 arm to below Reference Case levels. There are marginal increases in RFC on the other arms, however these are considered negligible. Therefore, our analysis shows that the suggested concept design would lead to 'nil-detriment' in the area.

It is acknowledged that the provision of a signalised Toucan crossing in such close proximity to the roundabout may have an impact on vehicles leaving the roundabout northbound on the A26, resulting in vehicles queueing back onto the roundabout. As such, there may be a requirement for a Toucan crossing on this arm to be located further from the junction. Consequently, it is recommended that the positioning of the Toucan crossing in this feasibility design is only indicative and that the location of any active travel crossing in this locality must be established based on the full extent of the active travel links associated with the adjacent masterplan development. This would form part of the planning application submission.

There is also a wider potential to improve bus services in this area through highway works. TWBC is currently working with KCC (and Tonbridge & Malling Borough Council) on such measures. As a result, there will be a need for a further refinement of design and demand when detailed plans come forward for the Tudeley village site planning application to refine plans to improve bus journey times through the junction and to enable walking and cycling with Tonbridge.

DMRB Design Compliance

The identified mitigation measure would be designed in accordance with CD 116 – Geometric design of roundabouts. These works are very minor and therefore, departures from standards are not anticipated. The initial feasibility layout is largely limited to the westbound approach to the roundabout on the Tudeley Road arm, with the immediate approach flare retained.

Safety Review

The highway improvement works are minor in nature. The primary safety consideration would be securing adequate visibility towards and through the junction. It is considered that these can be easily provided. Furthermore, as there are no existing or proposed pedestrian movements crossing or travelling along the southern edge of Tudeley Road, the proposed highway improvement works would not negatively impact pedestrian safety.

The suggested 3m shared-use path has a 2m verge buffer on the A26 North arm in compliance with LTN1/20 for the 50mph limit. The path continues along the northern side of the Tudeley Road arm where a 2.5m verge buffer is provided for the national speed limit along this road. The proposed toucan crossing on the northern arm is in a position with good visibility and set back from the circulatory area to prevent drivers misidentifying a signalised roundabout. It may be appropriate to review the speed limit of all approaches in the vicinity of the roundabout.

Estimated Year of Implementation

Pre 2031

Cost and Budget

A high-level cost estimate is expected to be approximately £500,000. This would be within the identified Stantec proposed masterplan budget (as part of the Strategic Sites Infrastructure Plan) for a mitigation at this location of £1,000,000. The Infrastructure Delivery Plan has identified a cost of £1,500,000 for the wider works.

The cost of the works to cover the high quality priority infrastructure for bus and active travel (walking, wheeling and cycling) at this location will be dependent on the detailed designs for proposed changes in the area that would be submitted as part of the next stage of master planning.

4. Junction 12 A228 Branbridges Road / B2160 Maidstone Road / A228 Whetsted Road

Summary of Strategic Modelling Results and Reason for Mitigation

As illustrated by the SATURN modelling results summarised below, the greatest impact of the Local Plan on this junction are experienced in the AM Peak as a result of additional traffic on the B2160 and A228 SW approach arms.

	AM Peak											
	Reference Case 2038			Local Plan scenario without highway mitigations			Local Plan scenario including highways mitigation measures only			Local Plan scenario including highways mitigation measures and mode shift from Sustainable Transport Zone		
	Arm V/C	Flow pcu	Average Junction V/C	Arm V/C	Flow pcu	Average Junction V/C	Arm V/C	Flow pcu	Average Junction V/C	Arm V/C	Flow pcu	Average Junction V/C
A228 Branbridges Road (NE)	100	2,124	96	92	1,974	99	96	2,054	92	93	1,992	90
B2160 Maidstone Road (SE)	98	593	96	101	735	99	72	734	92	69	706	90
A228 Whetsted Road (SW)	88	901	96	113	1,005	99	99	1,313	92	98	1,306	90
Unnamed Road (NW)	14	39	96	17	39	99	22	39	92	20	38	90
	PM Peak											
	Reference Case 2038			Local Plan scenario without highway mitigations			Local Plan scenario including highways mitigation measures only			Local Plan scenario including highways mitigation measures and mode shift from Sustainable Transport Zone		
	Arm V/C	Flow pcu	Average Junction V/C	Arm V/C	Flow pcu	Average Junction V/C	Arm V/C	Flow pcu	Average Junction V/C	Arm V/C	Flow pcu	Average Junction V/C
A228 Branbridges Road (NE)	60	1,285	81	93	1,922	92	97	2,074	86	90	1,901	82
B2160 Maidstone Road (SE)	85	760	81	104	644	92	90	778	86	76	722	82
A228 Whetsted Road (SW)	108	963	81	89	889	92	62	826	86	76	1,016	82
Unnamed Road (NW)	41	89	81	36	92	92	30	92	86	34	91	82

The strategic modelling showed that, in the main, the junction would operate within capacity with the implementation of the Local Plan mitigation measures.

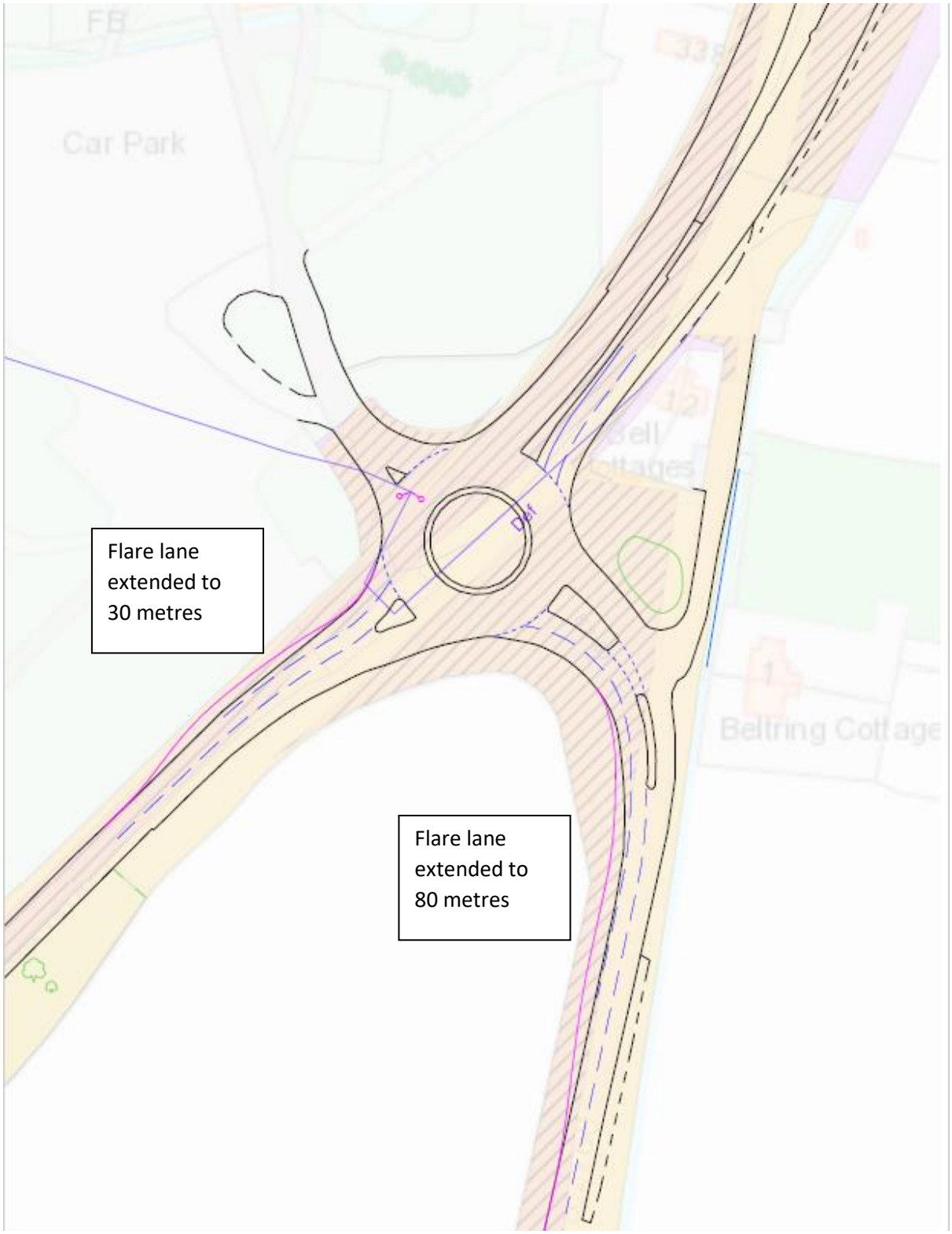
Whilst it is acknowledged that the A228 SW arm would be operating close to capacity in the AM peak, the average junction V/C would be improved on all arms when compared to the reference case. During the PM peak, the average junction v/c are very similar.

Therefore, as the strategic modelling has shown that the mitigation measures will improve the operation and capacity of the junction in the AM peak and have “nil detriment” in the PM peak, further localised modelling is not considered necessary.

Potential Mitigation and Boundary Analysis

The mitigation measure identified to ensure better junction performance when considering additional future growth is to provide additional capacity on both the A228 SW arm on approach and the B2160 approach arm by making it 2 lanes for each. The concept design of this measure is illustrated in **Figure 4-1** below.

Figure 4-1 – Junction 12 A228 / B2160 Mitigation Concept Design



The proposals, which have been developed within existing public highway for the additional 30 metres of extra flare lane on the A228 (SW) arm approaching the roundabout. The creation of an 80 metre flare on the B2160 approach arm to roundabout is within existing public highway and thus, this mitigation solution would be wholly achieved within highway land. The geometry of the roundabout and other approaches remains the same, whilst no additional crossings are included.

DMRB Design Compliance

The identified mitigation measure would be designed in accordance with CD 116 – Geometric design of roundabouts. These works are very minor and therefore, departures from standards are not anticipated. The initial feasibility layout is largely limited to the southeast and southwest approaches to the roundabout on the A228 Whetsted Road and B2160 Maidstone Road arms respectively, with the immediate approach flares and roundabout geometry retained.

Safety Review

The highway improvement works are minor in nature. The primary safety consideration would be securing adequate visibility towards and through the junction. It is considered that these can be easily provided.

Estimated Year of Implementation

Pre 2031

Cost and Budget

A high-level cost estimate is expected to be approximately £250,000. This is within the identified Stantec proposed masterplan budget and Infrastructure Delivery Plan estimate of £1,000,000 for mitigation at this location. As a result, there is no additional funding requirement identified for this location.

5. Junction 13: A228 Maidstone Road / B2017 Badsell Road

Summary of Modelling Results and Reason for Mitigation

As can be seen from the table below, the impact of Local Plan in the AM Peak is to push extra traffic onto the B22017 East arm approach, and onto the A228 in both the AM Peak and PM Peak.

	AM Peak											
	Reference Case 2038			Local Plan scenario without highway mitigations			Local Plan scenario including highways mitigation measures only			Local Plan scenario including highways mitigation measures and mode shift from Sustainable Transport Zone		
	Arm V/C	Flow pcu	Average Junction V/C	Arm V/C	Flow pcu	Average Junction V/C	Arm V/C	Flow pcu	Average Junction V/C	Arm V/C	Flow pcu	Average Junction V/C
A228 Maidstone Road (N)	109	1,139	96	112	1,227	101	72	1,328	74	71	1,328	70
B2017 Badsell Road (E)	105	611	96	113	644	101	81	861	74	71	749	70
A228 Maidstone Road (S)	87	767	96	91	790	101	74	1,455	74	73	1,430	70
B2017 Badsell Road (NW)	71	498	96	74	544	101	16	92	74	15	85	70
	PM Peak											
	Reference Case 2038			Local Plan scenario without highway mitigations			Local Plan scenario including highways mitigation measures only			Local Plan scenario including highways mitigation measures and mode shift from Sustainable Transport Zone		
	Arm V/C	Flow pcu	Average Junction V/C	Arm V/C	Flow pcu	Average Junction V/C	Arm V/C	Flow pcu	Average Junction V/C	Arm V/C	Flow pcu	Average Junction V/C
A228 Maidstone Road (N)	81	763	86	105	1,100	105	80	1,292	72	70	1,202	67
B2017 Badsell Road (E)	60	463	86	103	665	105	54	588	72	45	522	67
A228 Maidstone Road (S)	95	959	86	113	932	105	77	1,579	72	76	1,572	67
B2017 Badsell Road (NW)	97	642	86	97	614	105	29	147	72	26	136	67

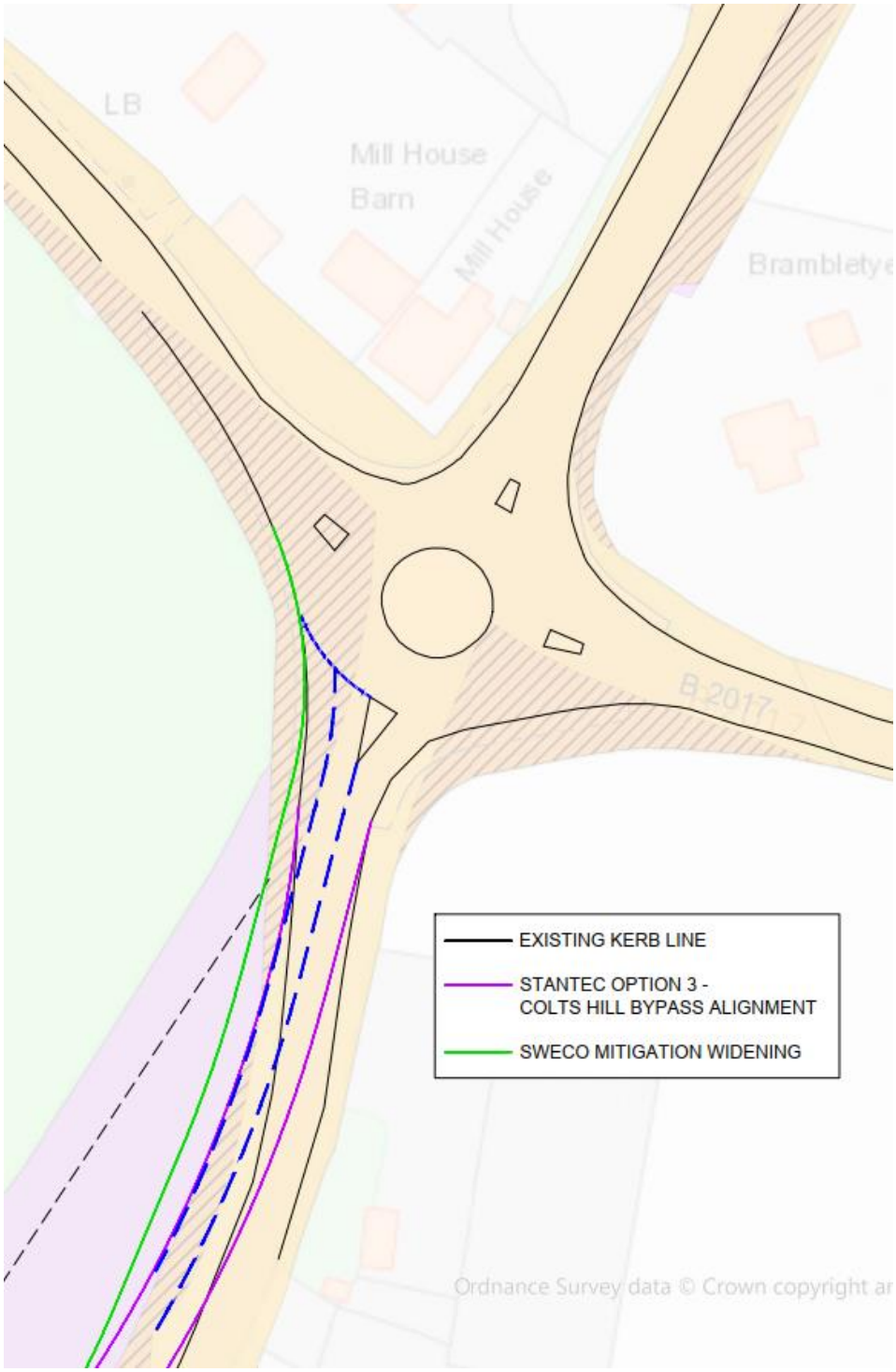
The above table also clearly shows that the strategic modelling has demonstrated that the Local Plan mitigation measures would address the capacity issues at this junction. As such, it is not considered necessary to undertake localised modelling of this junction.

Potential Mitigation and Boundary Analysis

Future mitigation measures at this junction have been considered alongside wider plans for the Colts Hill Bypass to the south of this junction. The option assessed below has been designed to tie in with the alignment of the bypass as produced by Stantec as part of the Strategic Sites Infrastructure Plan. The analysis undertaken by Sweco showed that further mitigation would be required at this junction and the provision of an additional lane on the A228 Maidstone Road arm approach is suggested.

The mitigation concept design is for the provision of an additional 80m flare on the northbound approach as illustrated in **Figure 5-1**. It can be seen from the figure below that the suggested additional mitigation can be accommodated wholly within KCC owned land.

Figure 5-1 – Junction 13 A228 / B2017 Mitigation Concept Design



DMRB Design Compliance

The identified mitigation measure would be designed in accordance with CD 116 – Geometric design of roundabouts. These works are very minor and therefore, departures from standards are not anticipated. The initial feasibility layout is largely limited to the northbound approach to the roundabout on the A228 Maidstone Road arm with the immediate approach flare retained.

Safety Review

The highway improvement works are minor in nature. The primary safety consideration would be securing adequate visibility towards and through the junction. It is considered that these can be easily provided.

Estimated Year of Implementation

Pre 2031

Cost and Budget

The scheme itself is costed at a high-level cost of £250,000. The identified Stantec proposed masterplan budget is £2,000,000, in addition to the costs for the Colts Hill part offline bypass and upgrade works to Colts Hill. This has been factored into the viability assessment for the strategic sites. In addition, approximately £1.4 million has already been secured through S.106 contributions associated with the three existing permissions (which are currently being constructed) at Mascalls Court Farm, Mascalls and Church Lane. The estimated cost of these works are well within this budget envelope.

This mitigation measure will need to be incorporated into plans for the wider Colts Hill Bypass if taken forward or applied as an independent scheme if it is not.

A further option of a larger roundabout has previously been put forward by KCC, to tie in with the historic route of the fully offline Colts Hill bypass. This option will take into account wider pre-existing highway issues in the area. The Stantec option mitigates the impact from the Local Plan growth, and the proposed mitigation outlined in this Note is focussed on tying into this scheme.

6. Junction 22: A21 / A228 / Tesco

Summary of Modelling Results and Reason for Mitigation

As can be seen from the table below, the strategic Saturn Modelling indicated that this junction may experience increased levels of congestion in the PM Peak with the Local Plan growth when compared to the Reference Case. Whilst the mode shift resulting from the sustainable transport measures would result in a betterment in the average junction V/C on all arms in the PM peak period, the strategic modelling indicated that there may be additional delay and queuing experienced on the A228 Pembury Road (W) arm.

As a result, localised junction modelling has been undertaken to further understand the impact of the Local Plan on this junction.

	AM Peak											
	Reference Case 2038			Local Plan scenario without highway mitigations			Local Plan scenario including highways mitigation measures only			Local Plan scenario including highways mitigation measures and mode shift from Sustainable Transport Zone		
	Arm V/C	Flow pcu	Average Junction V/C	Arm V/C	Flow pcu	Average Junction V/C	Arm V/C	Flow pcu	Average Junction V/C	Arm V/C	Flow pcu	Average Junction V/C
A21 SB Slips (N)	102	565	78	96	555	79	96	450	75	93	439	75
A228 Pembury Northern Bypass (E)	73	780	78	81	873	79	68	836	75	68	853	75
Unnamed Road (S)	36	84	78	63	128	79	45	128	75	42	117	75
A228 Pembury Road (W)	72	956	78	71	944	79	75	999	75	77	1,022	75
	PM Peak											
	Reference Case 2038			Local Plan scenario without highway mitigations			Local Plan scenario including highways mitigation measures only			Local Plan scenario including highways mitigation measures and mode shift from Sustainable Transport Zone		
	Arm V/C	Flow pcu	Average Junction V/C	Arm V/C	Flow pcu	Average Junction V/C	Arm V/C	Flow pcu	Average Junction V/C	Arm V/C	Flow pcu	Average Junction V/C
A21 SB Slips (N)	102	488	94	102	451	100	101	524	94	96	492	89
A228 Pembury Northern Bypass (E)	79	937	94	78	957	100	73	964	94	70	926	89
Unnamed Road (S)	150	322	94	155	364	100	105	364	94	86	331	89
A228 Pembury Road (W)	88	1,168	94	100	1,334	100	104	1,378	94	100	1,333	89

Localised Junction Model – Existing Junction Layout

Sweco have developed an ARCADY model of this junction to further understand the impacts of the Local Plan on the existing layout. The ARCADY model outputs for the existing junction are summarised in **Figure 6-1** below.

Figure 6-1 Arcady Results – Current Junction Layout and Future Year Demand (2038)

Summary Results

Show ▾ Columns ▾

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
Ref Case 2038								
1 - A21	**0.7**	**4.06**	**0.39**	**A**	0.6	3.86	0.36	A
2 - A228 Pembury Northern Bypass	**1.1**	**4.63**	**0.50**	**A**	1.4	4.92	0.58	A
3 - Tesco	**0.2**	**7.09**	**0.15**	**A**	1.4	14.45	0.59	B
4 - A228 Pembury Road	**1.1**	**3.95**	**0.52**	**A**	2.0	5.55	0.66	A
Local Plan 2038								
1 - A21	0.6	4.12	0.33	A	0.8	4.97	0.44	A
2 - A228 Pembury Northern Bypass	1.1	4.34	0.50	A	1.6	5.40	0.61	A
3 - Tesco	0.3	6.84	0.20	A	2.1	19.90	0.69	C
4 - A228 Pembury Road	1.3	4.21	0.55	A	3.6	8.74	0.78	A
Local Plan MS 2038								
1 - A21	0.5	4.04	0.32	A	0.7	4.73	0.41	A
2 - A228 Pembury Northern Bypass	1.1	4.36	0.51	A	1.3	4.77	0.57	A
3 - Tesco	0.2	6.77	0.19	A	1.4	13.62	0.58	B
4 - A228 Pembury Road	1.3	4.33	0.56	A	3.1	7.68	0.75	A

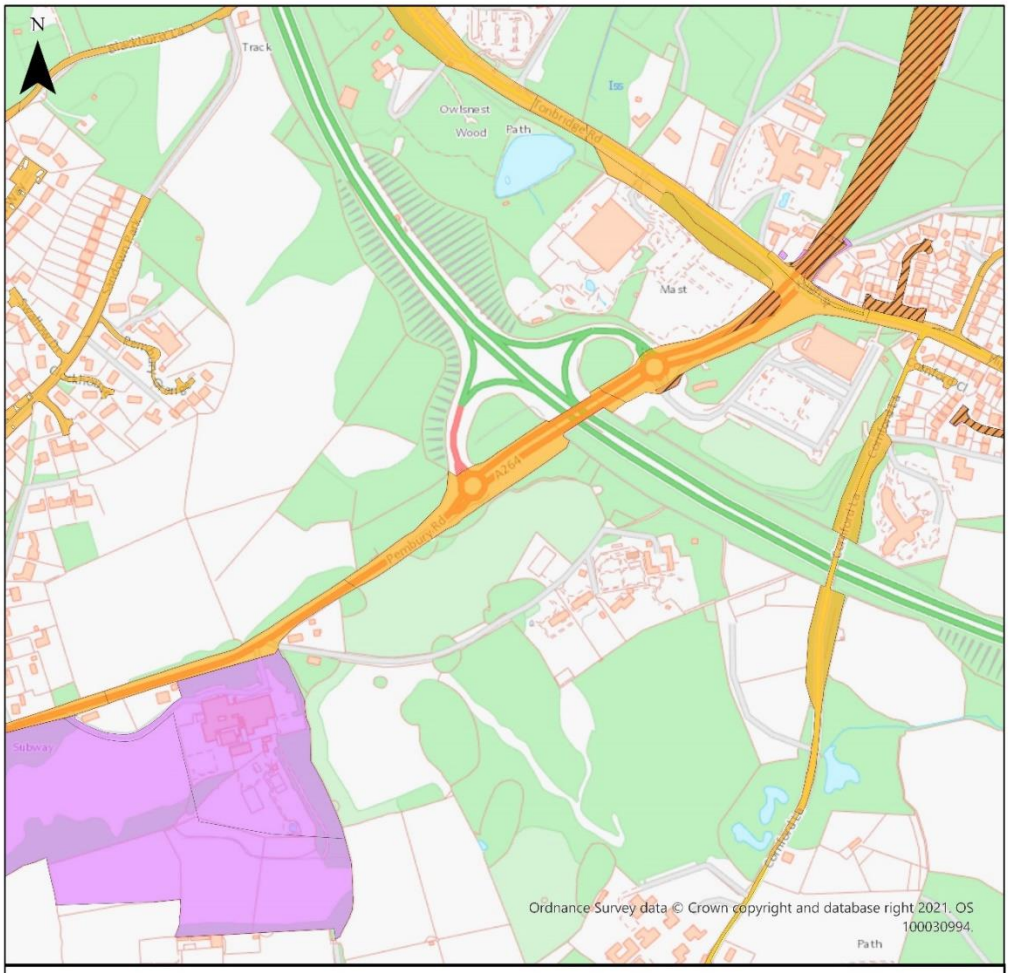
Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

The ARCADY results show that the existing junction would operate well within capacity in all Local Plan scenarios in the AM peak. In the reference case scenario, the existing junction would also operate within capacity in the PM peak period.

The localised modelling indicates that during the PM peak, the Tesco approach arm would be operating closest to theoretical capacity in the Local Plan 2038 scenario which sees only minor increases in RFC on all other approaches. However, this delay on the Tesco arm is not seen as significant. Furthermore, the Local Plan MS 2038 scenario demonstrates that these delays can be offset by improving walking, cycling and bus connections through the area as part of wider investment in sustainable transport to generate a significant modal shift from car.

The localised junction modelling has clearly demonstrated that proposed Local Plan growth would not have a severe impact on the capacity and operation of the existing A21 / A228 / Tesco junction. Therefore, there is no requirement to provide physical highway improvement works at this junction.

Notwithstanding, there is potential for a bus lane towards Royal Tunbridge Wells as highlighted on Page 17 of the TAA Rev2 report - *"The sustainable transport mitigations also support placing a bus lane on the A228 southbound from Woodgate Corner to past the dumbbell junction with the A21 to also help control highway demand through the junction."* This could be facilitated by reassigning the traffic lanes across the overbridge where the outer lane appears to be poorly used on the basis that most traffic intends to go straight to Royal Tunbridge Wells rather than turn right for the A21. Highway boundary data for this location has been obtained from KCC and is included below for reference.



Junction: Tonbridge Road/High Street/Pembury Northern Bypass to A264/B2023/Bayhall Road (a)

Corridor: Pembury Road	Meters 0 60 120 180 240 300	Scale: 1:6,000

Summary Intervention: -

KCC Information:

- Land Owned by KCC
- Publicly Maintainable by KCC Highways
- Land Owned by KCC and Publicly Maintainable by KCC Highways

7. Junction 35: Kippings Cross Roundabout (A21 / B2160)

Summary of Modelling Results and Reason for Mitigation

As highlighted by the strategic modelling results shown below, the impact of the Local Plan experienced at this junction is an increase to delay at the B2160 Maidstone Road arm and the A21 East arm. The A21 East arm is already significantly over capacity in the Reference Case.

	AM Peak											
	Reference Case 2038			Local Plan scenario without highway mitigations			Local Plan scenario including highways mitigation measures only			Local Plan scenario including highways mitigation measures and mode shift from Sustainable Transport Zone		
	Arm V/C	Flow pcu	Average Junction V/C	Arm V/C	Flow pcu	Average Junction V/C	Arm V/C	Flow pcu	Average Junction V/C	Arm V/C	Flow pcu	Average Junction V/C
B2160 Maidstone Road (N)	101	791	87	112	776	96	112	710	90	108	684	86
A21 (E)	111	1,152	87	122	1,211	96	95	1,606	90	89	1,503	86
Dundale Road (S)	14	27	87	14	27	96	28	27	90	27	25	86
A21 Hastings Road (W)	60	1,296	87	69	1,504	96	74	1,254	90	70	1,207	86
	PM Peak											
	Reference Case 2038			Local Plan scenario without highway mitigations			Local Plan scenario including highways mitigation measures only			Local Plan scenario including highways mitigation measures and mode shift from Sustainable Transport Zone		
	Arm V/C	Flow pcu	Average Junction V/C	Arm V/C	Flow pcu	Average Junction V/C	Arm V/C	Flow pcu	Average Junction V/C	Arm V/C	Flow pcu	Average Junction V/C
B2160 Maidstone Road (N)	62	352	79	75	488	90	102	306	85	96	288	78
A21 (E)	68	922	79	73	970	90	55	934	85	52	875	78
Dundale Road (S)	26	96	79	33	111	90	102	111	85	92	101	78
A21 Hastings Road (W)	91	1,898	79	103	2,148	90	94	2,117	85	86	1,971	78

In the main the Local Plan mitigation is effective with the delays for the A21 arms reduced to within Reference Case levels, but this is at the expense of the other arms, in particular the B2160 arm. It should however be understood that there is a wider aspiration to maximise benefits of the A228 upgrade and that the extra Local Plan traffic from Paddock Wood should be diverted as much as possible onto that corridor instead of using the B2160 through Matfield.

As a result, localised junction modelling has been undertaken to further understand the impact of the Local Plan and highway mitigation on this junction.

Localised Junction Model – Existing Junction Layout

Sweco have developed an ARCADY junction model to test the mitigation concept design in more detail. In order to demonstrate the impact of the mitigation solution, this analysis includes a review of the existing junction layout against future highway demand projections within the 2038 reference case and 2038 Local Plan scenarios.

The localised modelling of this junction is based on the right turners from the B2160 forming two queues at the roundabout. Assuming two lanes of right turners is considered appropriate on the basis that, as indicated on Figure 7-2, the existing junction geometry allows two lanes on entry into the junction from the B2160, two circulatory lanes through the roundabout and two lanes on exit onto the A21 westbound. The ARCADY model outputs for the current junction layout are set out in **Figure 7-1** below.

Figure 7-1 – ARCADY Model Outputs for existing Roundabout Junction

			AM			PM		
			Queue (PC	Delay (s)	RFC	Queue (PC	Delay (s)	RFC
Existing layout (Arcady)	Ref Case	B2160	2.9	12.16	0.74	0.7	6.96	0.42
		A21 East	168.9	565.92	1.33	5.4	20.15	0.84
		Dundale Rd	0.1	12	0.09	0.2	7.74	0.18
		A21 West	1.2	3.01	0.51	3.4	5.96	0.77
	Local Plan	B2160	1.8	8.32	0.64	0.5	5.62	0.34
		A21 East	537.3	1625.75	1.69	4.4	15.86	0.81
		Dundale Rd	0.1	10.7	0.08	0.2	7.11	0.19
		A21 West	1.1	2.91	0.5	5.9	9.39	0.85
	Local Plan Mitigation Strategy	B2160	1.6	7.57	0.61	0.5	5.38	0.31
		A21 East	406.9	1198.86	1.55	3.1	11.75	0.74
		Dundale Rd	0.1	10.4	0.07	0.2	6.34	0.16
		A21 West	1	2.81	0.48	3.9	6.66	0.79

The ARCADY analysis indicated that there would be no capacity issues in the PM peak period in all Local Plan scenarios.

However, in the AM Peak hour there was shown to be an underlying issue at the junction in the AM peak in the Reference Case in terms of queuing on the A21 East arm, which would be operating significantly over capacity.

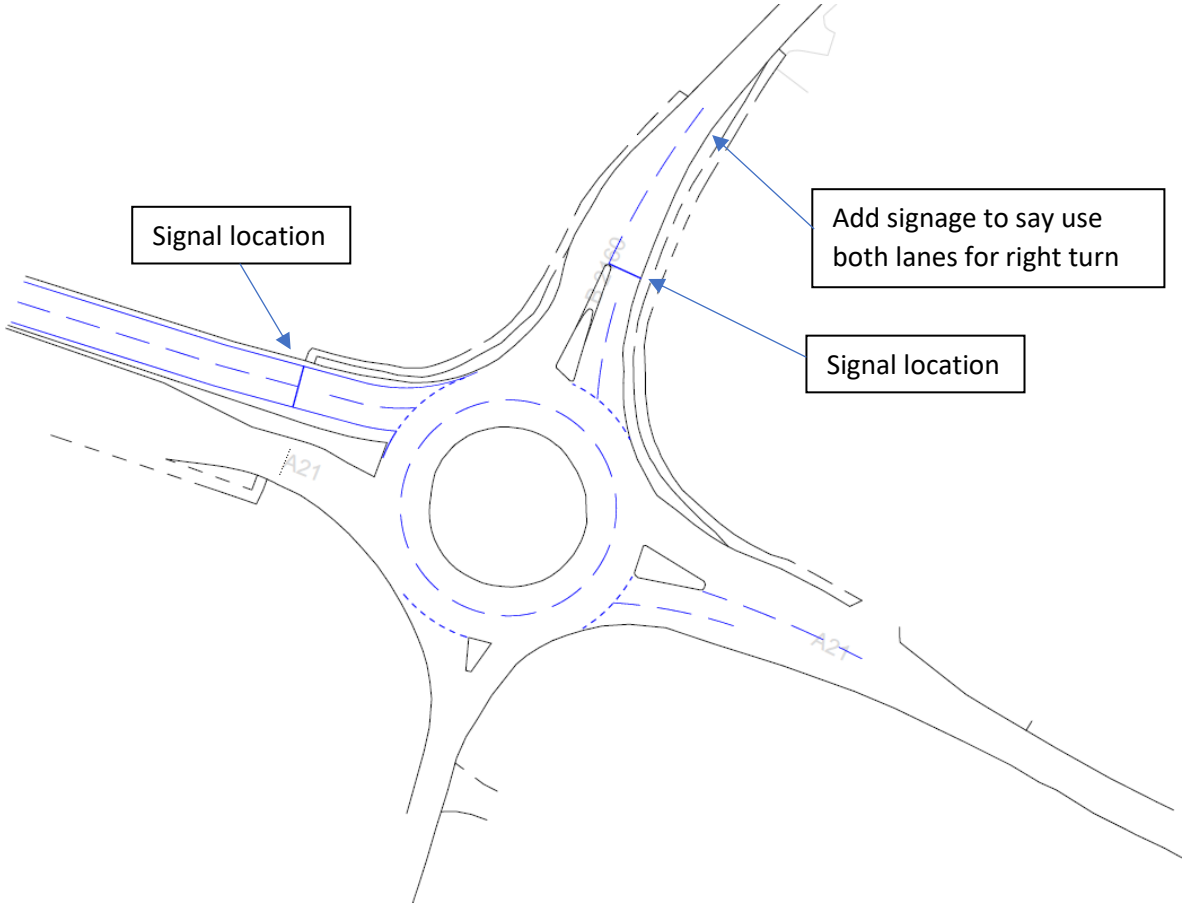
The introduction of Local Plan traffic to the scenarios, with and without wider modal shift, significantly increase the delay for traffic on the A21 East arm beyond acceptable levels. This is as a direct result of the increase in traffic turning right from the B2160. Therefore, the mitigation suggested at this junction has been designed to hold back the flow from the B2160 so as to provide increased opportunities to exit the A21 East arm, thus minimising impacts.

Potential Mitigation and Boundary Analysis

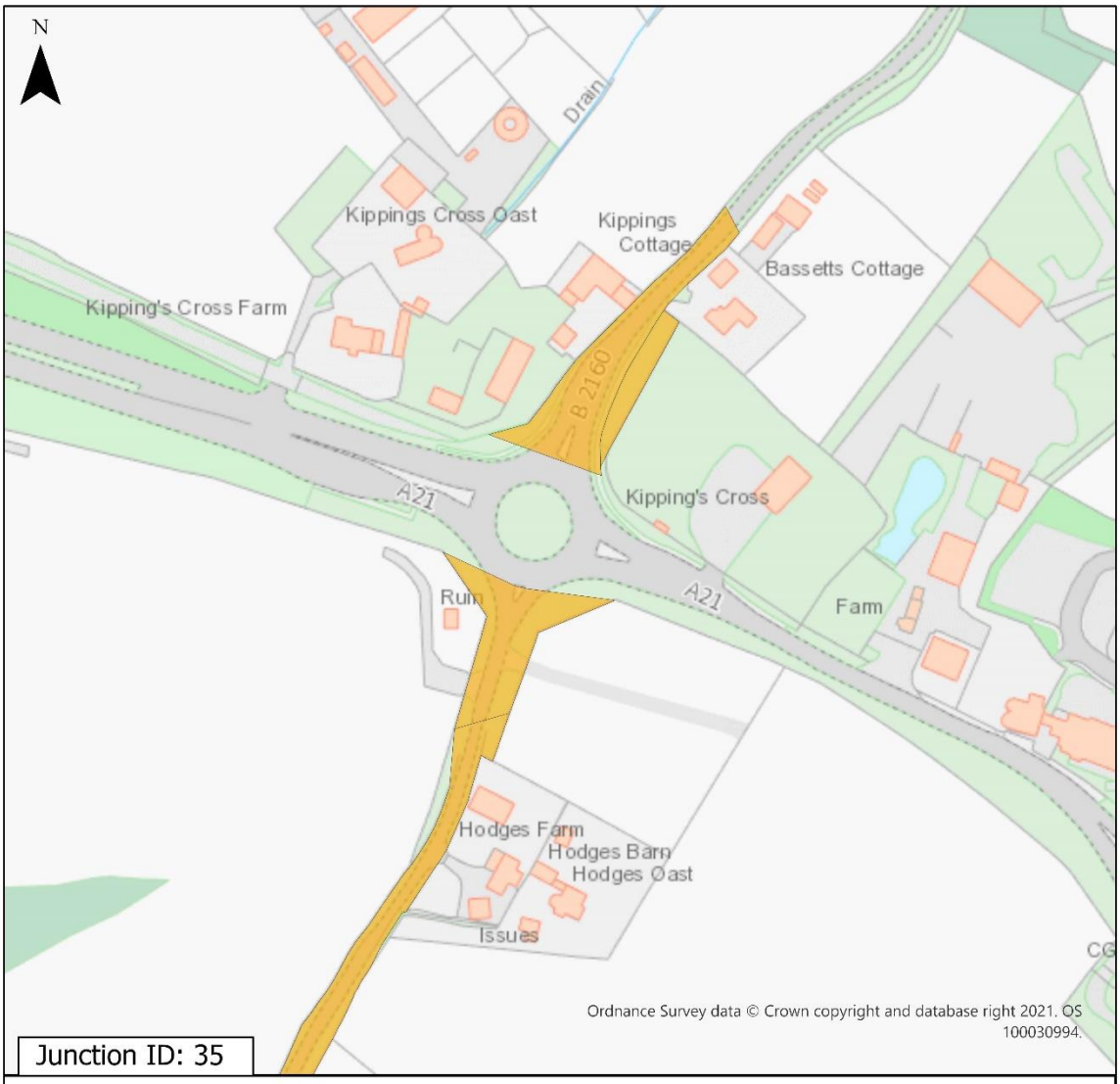
The original mitigation measure identified was a partial signalisation of the roundabout with an internal stop line. However after feedback from National Highways, and a further analysis of our junction modelling, we now propose that indirect signal control should be the mitigation for this junction.

This option includes the provision of traffic signals on the B2160 and A21 eastbound approaches to the roundabout but offset 20 metres from the junction so that the entry continues to operate in a self-regulating manner under normal priority control. This is illustrated in the **Figure 7-2** below, which also shows associated changes to lane markings on the roundabout. Furthermore, the ability for both of the B2160 lanes to be used for right turners could be reinforced through the provision of appropriate signage in advance of the traffic signals, as indicated.

Figure 7-2 – Junction 13 A21 / B2160 Mitigation Concept Design



There is no change to road space required and so the works can be delivered within the extents of the existing junction geometry and in turn, within the existing highway boundaries. Highway boundary data for this location has been obtained from KCC and is included below for reference only.



Junction: Kipplings Cross (A21/B2160 Maidstone Road/Dundale Road)

Corridor: A21	Meters 0 20 40 60 80 100	Scale: 1:2,000

Summary Intervention: Signals on roundabout

KCC Information:

- Land Owned by KCC
- Publicly Maintainable by KCC Highways
- Land Owned by KCC and Publicly Maintainable by KCC Highways

Localised Junction Model – Mitigation Solution

Sweco have built a LinSig Model to assess the capacity of the indirect signal controlled roundabout mitigation solution outlined above. The results of the LinSig model is **Figure 7-3** below.

Figure 7-3 – LinSig Model Outputs: Mitigation Layout Option

			AM			PM		
			Queue (PC	Delay (s)	Deg Sat	Queue (PC	Delay (s)	Deg Sat
Pedestrian roundabout signalisation (Linsig)	Local Plan Mitigation Strategy	B2160 sigs approach	4.9	3.4	40.6	1.5	2.5	18.8
		B2160 rdbt approach	3.8	3.3	52.1	0.2	2.2	26.1
		A21 East	3.7	8.8	88.4	0.8	3.3	61.8
		Dundale Rd	0.2	11.1	11.9	0.1	2.5	12.4
		A21 West sigs approach	3.9	3	33.4	8.9	4.3	55.2
		A21 West rdbt approach	1.4	2.6	43.5	12.4	6.4	72.4

The LinSig modelling shows that the introduction of indirect signal control at the junction reduces the delay on the A21 East arm to levels significantly within the Reference Case. This mitigation also doesn't come at the expense of a large increase of delays and queueing on the B2160 arm as all other arms see queueing comparable to the Reference Case.

DMRB Design Compliance

The identified mitigation measure would be designed in accordance with CD 116 – Geometric design of roundabouts (section 4.2). There is need for an assessment on the impact to the informal crossings around the roundabout, but that's for the detailed application stage. These works are very minor and therefore, departures from standards are not anticipated. On the A21 eastbound approach to the roundabout where signals are proposed, the median is 3.2m in width at the proposed stop line which allows space for the signals kit which will be set back some 900mm from the road edge.

Safety Review

The highway improvement works are minor in nature. The primary safety consideration would be securing adequate visibility towards and through the junction. It is considered that these can be easily provided. Our proposed design does not deviate from the principles of this design and may actually help reduce queueing impacts at peak times as traffic flow is controlled with signals. It is noted the informal walking and cycling crossings will need a further review at detailed design stage with CD116 stating *"Indirect signal control can balance the capacity of the entry arms, however, increases in vehicle gap distances can be detrimental to cyclists and pedestrians crossing the arms."* However, as the crossings are only on the arms with indirect signals the scheme is expected to be neutral for walking and cycling at these locations.

Estimated Year of Implementation

Pre 2031

Cost and Budget

A high-level cost estimate of £500,000 has been identified. This is within the identified Infrastructure Delivery Plan estimate of £1,500,000 for mitigation at this location. It is identified that this is to be delivered through developer funding and potentially from the Department for Transport. There are a considerable number of sites which will cause an impact on this junction – not just the strategic sites, and accordingly funding for this can be justified from multiple sites.

8. Junction 23 – A264 / Halls Hole Lane / Blackhurst Lane

Summary of Modelling Results and Reason for Mitigation

The strategic SATURN model outputs for this signalised 4-arm junction, summarised below, show that there is already a significant issue with congestion and delay at this junction in the Reference Case in 2038. The additional Local Plan highway traffic brings extra delay and congestion. However, the Local Plan MS (with modal shift from car in wider area) shows performance is close to that of the Reference Case, albeit still with significant underlying issues.

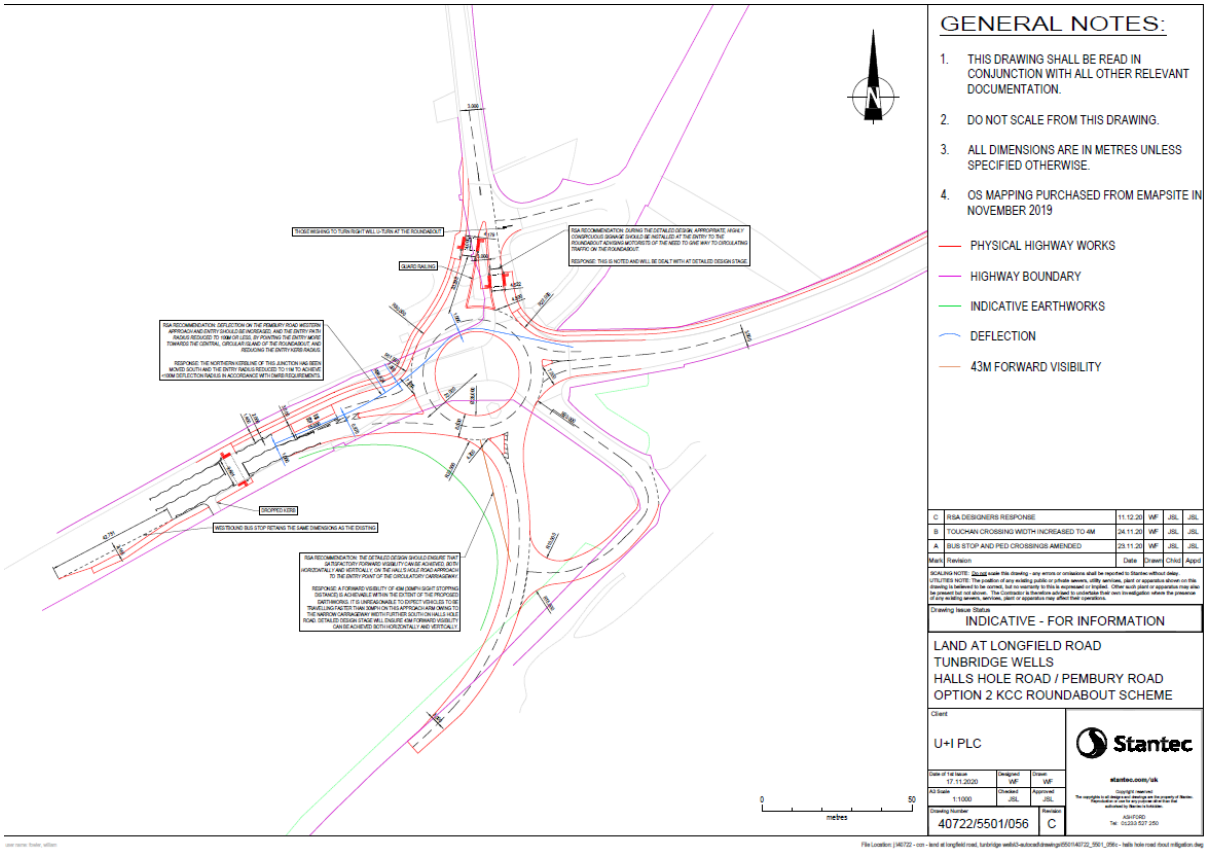
	AM Peak											
	Reference Case 2038			Local Plan scenario without highway mitigations			Local Plan scenario including highways mitigation measures only			Local Plan scenario including highways mitigation measures and mode shift from Sustainable Transport Zone		
	Arm V/C	Flow pcu	Average Junction V/C	Arm V/C	Flow pcu	Average Junction V/C	Arm V/C	Flow pcu	Average Junction V/C	Arm V/C	Flow pcu	Average Junction V/C
Blackhurst Lane (N)	111	222	100	109	229	103	109	229	105	103	209	102
A264 Pembury Road (E)	98	1,719	100	104	1,830	103	108	1,879	105	103	1,798	102
Hall's Hole Road (S)	103	342	100	104	276	103	104	299	105	106	411	102
A264 Pembury Road (W)	101	1,599	100	101	1,655	103	101	1,642	105	99	1,522	102
	PM Peak											
	Reference Case 2038			Local Plan scenario without highway mitigations			Local Plan scenario including highways mitigation measures only			Local Plan scenario including highways mitigation measures and mode shift from Sustainable Transport Zone		
	Arm V/C	Flow pcu	Average Junction V/C	Arm V/C	Flow pcu	Average Junction V/C	Arm V/C	Flow pcu	Average Junction V/C	Arm V/C	Flow pcu	Average Junction V/C
Blackhurst Lane (N)	45	93	91	117	102	96	101	102	100	91	96	95
A264 Pembury Road (E)	94	1,676	91	91	1,704	96	99	1,851	100	90	1,644	95
Hall's Hole Road (S)	71	353	91	98	486	96	101	438	100	101	586	95
A264 Pembury Road (W)	95	1,500	91	101	1,479	96	100	1,510	100	98	1,345	95

Road Safety

Only two slight collision incidents can be identified from STATS 19 data for the 5 year period of 2017-2021. One collision was on the A264 west arm, and one collision was on the Halls Hole Road arm. There is not a significant collision issue at this junction. However, future land use changes are likely to mean an increase in walking and cycling through this area so any potential safety issues in relation to this need to be taken into account.

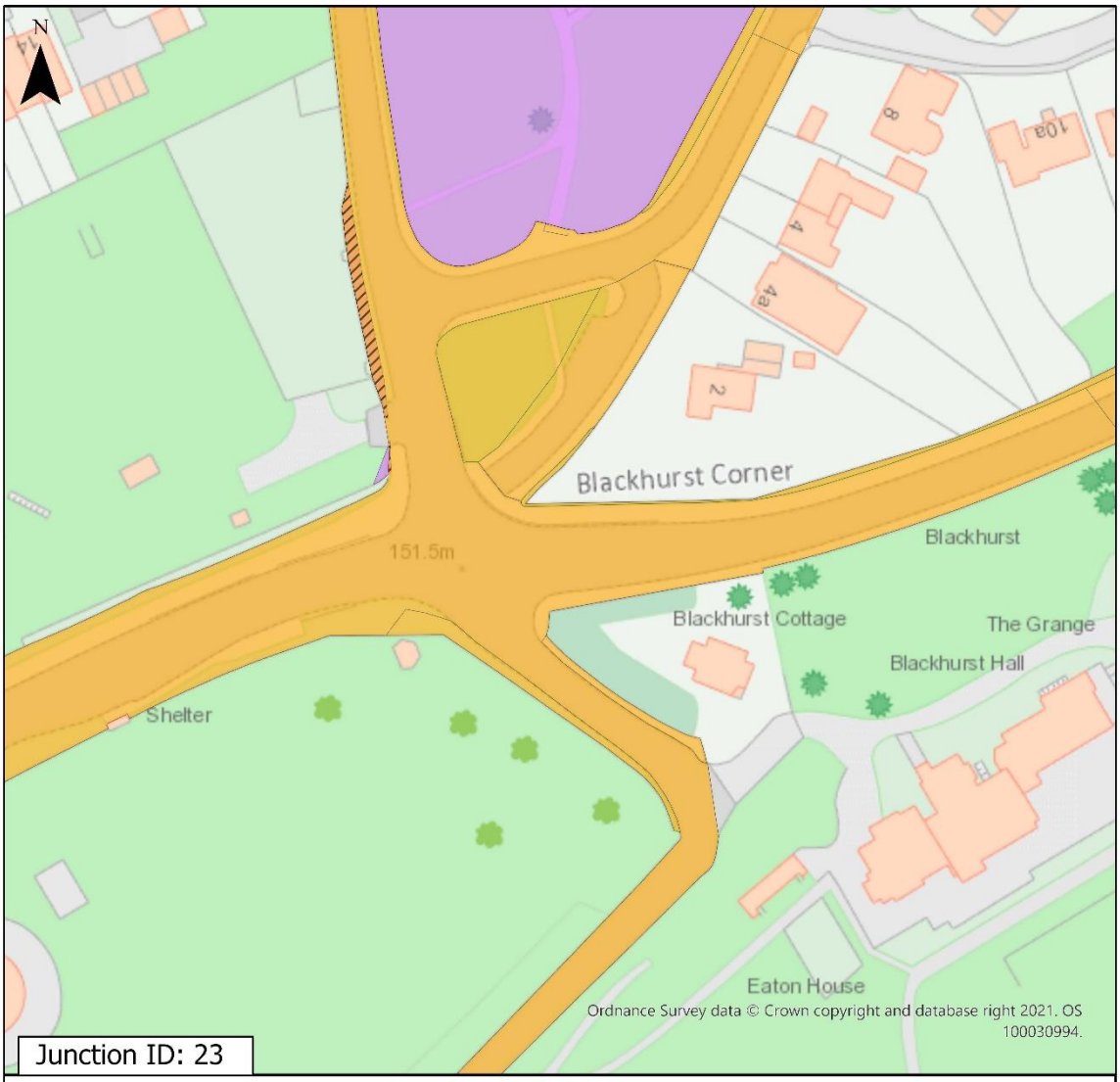
Alternative Roundabout Design

A roundabout redesign has been proposed as part the Kingstanding redevelopment at North Farm. This proposal includes a new approach from Halls Hole Road to the south of the junction, with the existing access for this road onto the A264 turned into a local access road. The junction layout drawing received from Stantec is provided below.



Deliverability of the Roundabout Option

This is not a design Sweco are proposing but a design already put forward as part of wider Local Plan work for allocated Sites. Our analysis therefore focuses solely on the highway performance of the roundabout scheme by way of comparison with the operation of the existing signalised junction in the future local plan scenarios. We nevertheless attach a map of current highway ownership for reference.



Junction ID: 23

Junction: Blackhurst Lane/A264 Pembury Road/Hall's Hole Road

Corridor: A264	Meters 0 10 20 30 40 50	Scale: 1:1,000

Summary Intervention: Roundabout

KCC Information:

- Land Owned by KCC
- Publicly Maintainable by KCC Highways
- Land Owned by KCC and Publicly Maintainable by KCC Highways

Junction Model Review

A capacity analysis of the two layout options for this junction has been undertaken using the following junction modelling software:

- Current signalised junction - LinSig
- Stantec roundabout junction layout analysis – ARCADY

Despite being two different modelling software packages, the outputs of Degree of Saturation and RFC are comparable. The outputs from the junction modelling are summarised in **Figure 8-1** below.

Figure 8-1 – Junction Modelling Outputs for Different Demand and Layout Options – Junction 23

			AM			PM		
			Queue (PC	Delay (s)	Deg Sat	Queue (PC	Delay (s)	Deg Sat
Existing junction layout **(Linsig)**	Ref Case	A264 Pembury Rd East	318.8	585.3	133	287.8	530.6	128.9
		Halls Hole Rd	71.5	646.2	131.2	67.2	597.6	128.3
		A264 Pembury Rd West	244	457.1	123.9	171.9	316.8	114.9
		Blackhurst Lane	5	58.7	57.1	2.7	52.8	29.2
	Local Plan	A264 Pembury Rd East	402.6	673.4	139.6	431.8	756.2	146.9
		Halls Hole Rd	67.7	717.7	137.1	111	811.8	145.9
		A264 Pembury Rd West	243.3	428.6	122.1	210	411.4	120.8
		Blackhurst Lane	6	69.2	71.9	2.9	50	29.1
	Local Plan Mitigation Strategy	A264 Pembury Rd East	394.5	704.1	142.6	375.3	743.8	146
		Halls Hole Rd	102.7	790.7	143.3	145	795.8	145.5
		A264 Pembury Rd West	219.9	413.4	120.8	176.7	389.5	119
		Blackhurst Lane	5	57.3	50.3	2.5	40.5	20.1
Retain signals - banned rights on A264 and extended A264 2 lane approach **(Linsig)**	Local Plan Mitigation Strategy	A264 Pembury Rd East	256.4	410.5	120.1	270.5	524	127.1
		Halls Hole Rd	66.2	442.1	118.1	110.8	545	126.4
		A264 Pembury Rd West	149.9	220.1	108.1	117.1	208.5	106.8
		Blackhurst Lane	8.8	83.3	45.4	4.1	65.3	17.5
Retain signals - banned rights from A264 to HHR and extended A264 2 lane approach **(Linsig)**	Local Plan Mitigation Strategy	A264 Pembury Rd East	387.6	685.1	140.5	379.9	733.2	143.9
		Halls Hole Rd	96.7	730.7	140.8	139.9	740.6	142.6
		A264 Pembury Rd West	94.2	109.1	102.1	73.3	101.5	100.9
		Blackhurst Lane	9.5	93.5	52.9	4.3	72	19.6
			AM			PM		
			Queue (PC	Delay (s)	RFC	Queue (PC	Delay (s)	RFC
Roundabout proposal **(Arcady)**	Local Plan Mitigation Strategy	A264 Pembury Rd East	131.7	300.6	1.17	80.9	181.61	1.11
		Halls Hole Rd	2.8	47.4	0.76	0.8	27.29	0.44
		A264 Pembury Rd West	181.3	387.55	1.2	65.1	117.82	1.06
		Blackhurst Lane	9.3	79.04	0.94	24.9	134.87	1.04

The analysis identifies that the current signalised junction layout in the Local Plan scenarios does not perform as well as the Reference Case. There is an increase in junction arm queue lengths and delays for A264 Pembury Road East Arm in AM Peak and for both A264 approach arms in the PM Peak.

The roundabout proposal performs better than the existing junction layout in the Reference Case in both the AM and PM Peaks. However, the implementation of this junction layout option would require a significant amount of third party land and financial investment. There is also a need to enhance the design to improve accessibility and connectivity for pedestrians and cyclists through the junction.

Sweco has considered an alternative mitigation option, including retaining the signals but banning right turns on the A264. Two options have been considered.

1. Ban both right turns on A264, to Halls Hole Road and Blackhurst Lane. Re-use space for additional straight ahead lane capacity
2. Ban right turn on A264 eastbound on the West arm on to Halls Hole Road. Re-use space for additional eastbound straight ahead lane capacity

Whilst it is acknowledged that a signalised junction may not perform as well as the roundabout proposal, Option 1 demonstrates that a "nil detriment" solution can be achieved without significant highway works and third party land. However, this scheme comes with an accessibility cost in the form of no access from the A21 via Pembury Road to Blackhurst Lane. Option 2 improves flow on the A264 Pembury Road West arm compared to the Reference Case, but it sees increased delay on the A264 Pembury Road East and significant delay on the Halls Hole Road approach.

Our analysis shows that the roundabout operates the best in terms of delay and queuing at this junction, particularly on the A264. The proposed design has been subject to considerable work through the consideration of the planning application but is acknowledged as being indicative and will require a review to include better provision for walking and cycling through the roundabout junction. Detailed Transport Assessments for applications for future development will have to consider the impacts of higher flows passing through this junction.

Therefore, the assessment has demonstrated that there is a highways mitigation solution that prevents a severe residual impact on the highway network and can be delivered. The Council has confirmed that it will, if necessary, use its Compulsory Purchase Order powers, or other means, to secure the delivery of the roundabout.

Estimated Year of Implementation

Pre 2031

Cost and Budget

This scheme is tied to the planning application at Kingstanding Way and its Section 106 commitments. The final cost, budget and design are to be confirmed through the S278 Agreement detailed design process when that comes forward, but the S.106 agreement for this development confirms that subject to a monitor and manage approach that it will be delivered. There is also scope for other developments in Tunbridge Wells and Pembury to contribute to its delivery.

9. Junctions where Mitigation Measures Not Proposed or Appropriate

Policy Approach to Sustainable & Active Travel

There are a small number of junctions where junction mitigation measures are not proposed or appropriate. These include:

- A26/Major Yorks Road (Royal Tunbridge Wells town centre)
- A26/Yew Tree Road (Southborough)
- A26 Tonbridge town centre (Tonbridge)

These will be mitigated through strong active travel and public transport enhancements. Details of how this will be secured are set out in **Appendix B**, but in summary include:

- A very strong policy basis to require such measures (for examples policies STR6 and STR1 in the Submission Local Plan) based on a robust evidence base which includes a Local Cycling and Walking Infrastructure Plan
- Commitment for the creation/provision of:
    - Low Traffic Neighbourhoods in Royal Tunbridge Wells and Southborough;
    - the provision of active travel routes between and within settlements, including to Tonbridge, and through enhancements of Public Rights of Way;
    - improved cycle parking and e-bike charging points and bike share opportunities;
    - rapid bus/transport links, including from Paddock Wood to Royal Tunbridge Wells, Paddock Wood to Tonbridge (via Tudeley Village), and Royal Tunbridge Wells to Tonbridge;
    - retaining and enhancing existing bus routes;
    - railway station infrastructure improvements where necessary, and increasing the attractiveness of travelling by rail, including to multiple destinations;
- Requiring robust travel plans;
- Supporting the expansion of car clubs and opportunities for car sharing.

Over recent years, Tunbridge Wells Borough Council has worked closely with Kent County Council as its Highway Authority and its Public Transport team, Network Rail and bus operators (e.g. KCC and Arriva as part of a Quality Bus Partnership), with the delivery of tangible results: more information is provided in **Appendix B**.

TWBC's commitment to active travel, and the delivery of strong active travel and public transport enhancements to mitigate the impact at the above junctions is demonstrated by the Council's (and Tonbridge & Malling BC's) recent recruitment to Active Travel England's Development Management pilot.

10. Conclusions

This Technical Note has been prepared to address KCC and NH requests for sensitivity assessment of a number of junctions which have been identified to be suffering congestion within the Strategic SATURN model in the Transport Modelling report, dated March 2021

Junction with Direct Mitigations

As agreed with KCC/NH localised junction modelling has been undertaken to further understand the impacts of the Local Plan and mitigation measures on the operation of the individual junctions. Appropriate industry standard junction modelling software has been utilised, specifically ARCADY for roundabout and LinSig for signalised junctions. This Note also provides an analysis of the feasibility of each of the highway improvement works, including deliverability, estimated year of implementation and costs. Details of the junction model outputs are in **Appendix A**.

The mitigation solutions presented within this Note have been developed to be accommodated within the extents of existing highway boundaries without the need for third party land. Therefore, there are no deliverability concerns with the implementation of the schemes.

It should be noted that these concept schemes are not intended to represent a preferred package of works or to advocate specific junction designs. The final design solutions would be developed as and when the individual proposals come forward to take account of any changes in traffic patterns and other infrastructure schemes coming forward in intervening years; and to ensure that inclusion of infrastructure for sustainable modes is considered first. They nevertheless demonstrate that the mitigations can be delivered.

It should be noted that none of the mitigation measures have been subject to a Road Safety Audit at this stage. Following standard processes, the physical mitigation measures should have a stage 1 Road Safety Audit completed before progressing to any further stage of design. As above, the mitigation presented in this report is to demonstrate that the level of development proposed is capable of mitigation. As discussed above, the final design solutions would be developed as and when the individual site proposals come forward. Notwithstanding, the initial safety reviews set out within this Note has not identified any safety concerns with the minor works being considered.

Junctions with Indirect Mitigations

There are a small number of junctions where junction mitigation measures are not proposed or appropriate. These will be mitigated through strong active travel and public transport enhancements. Details of how this will be secured are set out in **Appendix B**.

Conclusion

In conclusion, the sensitivity testing through the junction modelling and feasibility study set out within this Note demonstrates that the overall Local Plan growth, if accompanied by the appropriate mitigation measures, can be accommodated on the network without causing severe traffic impacts within the Borough. This demonstrates that the evidence base set out in the Transport Modelling report is robust, adequate and proportionate.

Appendix A

Junction 8 A26 Woodgate Way/B2017 Tudeley Road/Tudeley Lane

Arcady

- Reference Case
- Local Plan
- Local Plan Mitigation Scenario
- Local Plan MS with junction mitigated

Junctions 9

ARCADY 9 - Roundabout Module

Version: 9.0.2.5947

Filename: 8 - A26 Woodgate Way B2017 Tudeley Road B2017.j9
Path: T:\Tunbridge Wells\3. Technical\3.5 Junction models\Models\2022 Models\Junction 8_Tudeley Rd\Direct Saturn flows
Report generation date: 09/03/2022 09:23:31

Summary of junction performance

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
	Ref Case 2038							
1 - A26 North	2.7	7.03	0.72	A	2.0	5.83	0.66	A
2 - B2017 Tudeley Rd	10.0	39.16	0.93	E	0.7	5.53	0.42	A
3 - A26 south	3.0	9.39	0.74	A	2.3	6.57	0.69	A
4 - Five Oak Green Rd	0.6	8.15	0.36	A	0.2	5.09	0.19	A
	Local Plan 2038							
1 - A26 North	0.8	3.38	0.43	A	3.2	9.12	0.76	A
2 - B2017 Tudeley Rd	114.0	288.96	1.18	F	0.4	4.24	0.29	A
3 - A26 south	1.4	5.59	0.57	A	3.4	8.70	0.77	A
4 - Five Oak Green Rd	0.1	4.68	0.12	A	0.3	5.83	0.23	A
	Local Plan 2038 MS							
1 - A26 North	0.8	3.29	0.42	A	3.0	8.58	0.75	A
2 - B2017 Tudeley Rd	105.3	260.61	1.17	F	0.4	4.20	0.27	A
3 - A26 south	1.2	5.13	0.54	A	3.1	7.93	0.75	A
4 - Five Oak Green Rd	0.1	4.32	0.08	A	0.3	5.50	0.21	A

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

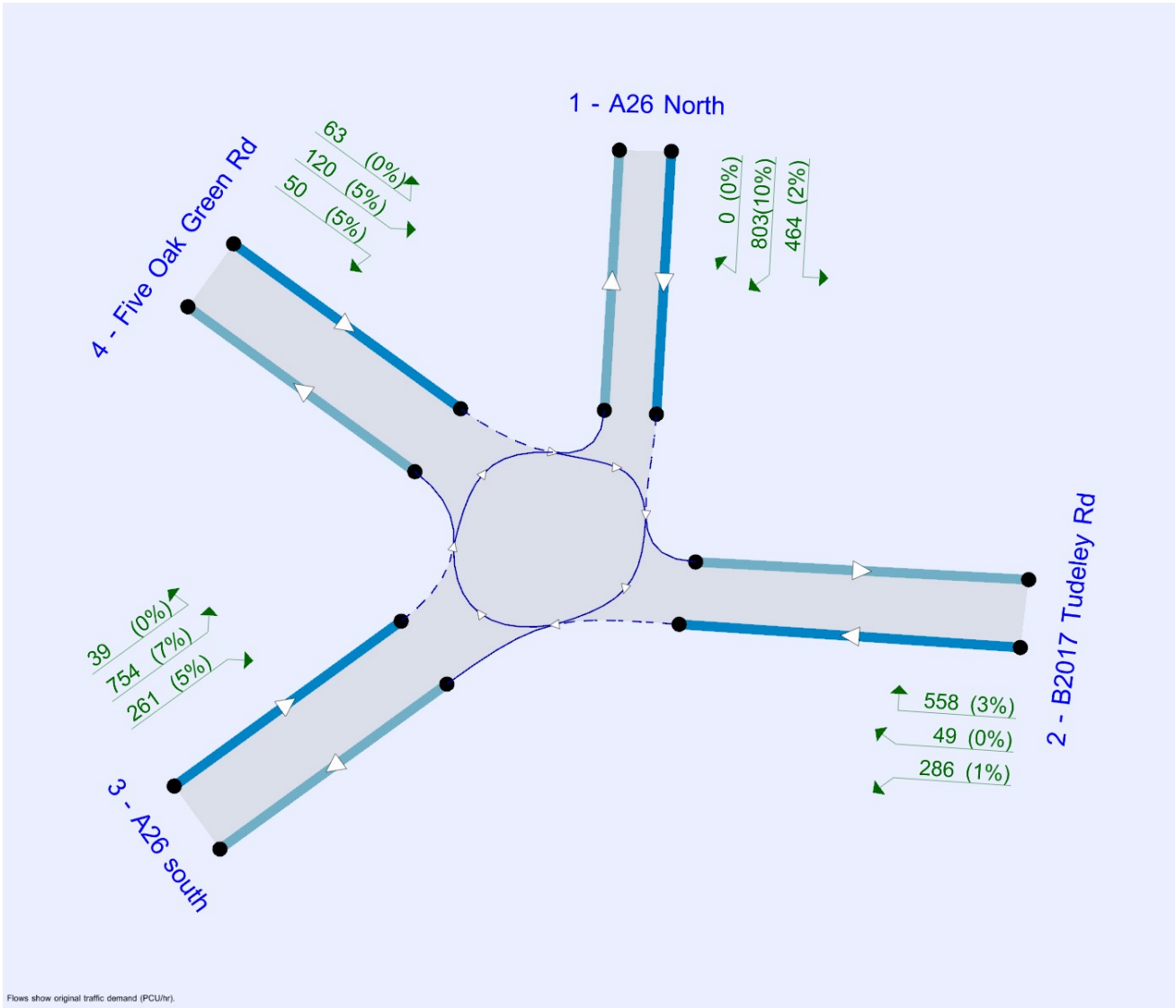
File summary

File Description

Title	(untitled)
Location	
Site number	
Date	13/10/2020
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	SWECO\GBGWJY
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	PCU	PCU	perHour	s	-Min	perMin



The junction diagram reflects the last run of Junctions.

Analysis Options

Calculate Queue Percentiles	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
		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)
D5	Ref Case 2038	AM	ONE HOUR	08:00	09:30	15
D6	Ref Case 2038	PM	ONE HOUR	17:00	18:30	15
D7	Local Plan 2038	AM	ONE HOUR	08:00	09:30	15
D8	Local Plan 2038	PM	ONE HOUR	17:00	18:30	15
D9	Local Plan 2038 MS	AM	ONE HOUR	08:00	09:30	15
D10	Local Plan 2038 MS	PM	ONE HOUR	17:00	18:30	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

Ref Case 2038, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout	1, 2, 3, 4	16.15	C

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	A26 North	
2	B2017 Tudeley Rd	
3	A26 south	
4	Five Oak Green Rd	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1 - A26 North	5.20	9.16	23.3	25.5	46.1	40.9	
2 - B2017 Tudeley Rd	2.96	8.26	14.5	26.0	46.1	33.6	
3 - A26 south	4.94	12.72	16.0	13.1	46.1	74.5	
4 - Five Oak Green Rd	3.48	8.06	24.4	18.6	46.1	49.4	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1 - A26 North	0.730	2289
2 - B2017 Tudeley Rd	0.611	1635
3 - A26 south	0.626	1982
4 - Five Oak Green Rd	0.620	1785

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D5	Ref Case 2038	AM	ONE HOUR	08:00	09:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A26 North		✓	1267	100.000
2 - B2017 Tudeley Rd		✓	893	100.000
3 - A26 south		✓	1054	100.000
4 - Five Oak Green Rd		✓	233	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - A26 North	2 - B2017 Tudeley Rd	3 - A26 south	4 - Five Oak Green Rd
From	1 - A26 North	0	464	803	0
	2 - B2017 Tudeley Rd	558	0	286	49
	3 - A26 south	754	261	0	39
	4 - Five Oak Green Rd	63	120	50	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A26 North	2 - B2017 Tudeley Rd	3 - A26 south	4 - Five Oak Green Rd
From	1 - A26 North	0	2	10	0
	2 - B2017 Tudeley Rd	3	18	1	0
	3 - A26 south	7	5	0	0
	4 - Five Oak Green Rd	0	5	5	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1 - A26 North	0.72	7.03	2.7	A
2 - B2017 Tudeley Rd	0.93	39.16	10.0	E
3 - A26 south	0.74	9.39	3.0	A
4 - Five Oak Green Rd	0.36	8.15	0.6	A

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - A26 North	954	323	2053	0.465	950	0.9	3.479	A
2 - B2017 Tudeley Rd	672	640	1244	0.540	668	1.2	6.325	A
3 - A26 south	794	454	1698	0.467	790	0.9	4.192	A
4 - Five Oak Green Rd	175	1178	1055	0.166	175	0.2	4.232	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - A26 North	1139	387	2006	0.568	1137	1.4	4.418	A
2 - B2017 Tudeley Rd	803	766	1168	0.688	799	2.2	9.871	A
3 - A26 south	948	543	1643	0.577	946	1.4	5.471	A
4 - Five Oak Green Rd	209	1410	911	0.230	209	0.3	5.308	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - A26 North	1395	472	1944	0.718	1390	2.6	6.888	A
2 - B2017 Tudeley Rd	983	936	1063	0.925	958	8.6	29.545	D
3 - A26 south	1160	651	1575	0.737	1155	2.9	8.977	A
4 - Five Oak Green Rd	257	1710	725	0.354	256	0.6	7.925	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - A26 North	1395	474	1942	0.718	1395	2.7	7.027	A
2 - B2017 Tudeley Rd	983	939	1061	0.926	977	10.0	39.157	E
3 - A26 south	1160	664	1567	0.741	1160	3.0	9.390	A
4 - Five Oak Green Rd	257	1728	714	0.359	256	0.6	8.147	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - A26 North	1139	390	2004	0.568	1144	1.4	4.501	A
2 - B2017 Tudeley Rd	803	770	1165	0.689	833	2.4	12.063	B
3 - A26 south	948	566	1628	0.582	953	1.5	5.719	A
4 - Five Oak Green Rd	209	1439	893	0.234	210	0.3	5.469	A

09:15 - 09:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - A26 North	954	325	2051	0.465	956	0.9	3.522	A
2 - B2017 Tudeley Rd	672	644	1242	0.541	677	1.2	6.559	A
3 - A26 south	794	460	1694	0.468	796	0.9	4.265	A
4 - Five Oak Green Rd	175	1189	1048	0.167	176	0.2	4.278	A

Ref Case 2038, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout	1, 2, 3, 4	6.04	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)
D6	Ref Case 2038	PM	ONE HOUR	17:00	18:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A26 North		✓	1131	100.000
2 - B2017 Tudeley Rd		✓	436	100.000
3 - A26 south		✓	1161	100.000
4 - Five Oak Green Rd		✓	157	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - A26 North	2 - B2017 Tudeley Rd	3 - A26 south	4 - Five Oak Green Rd
From	1 - A26 North	0	450	681	0
	2 - B2017 Tudeley Rd	197	0	234	5
	3 - A26 south	710	400	0	51
	4 - Five Oak Green Rd	44	55	58	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A26 North	2 - B2017 Tudeley Rd	3 - A26 south	4 - Five Oak Green Rd
From	1 - A26 North	0	1	3	0
	2 - B2017 Tudeley Rd	2	0	0	29
	3 - A26 south	4	2	0	0
	4 - Five Oak Green Rd	2	4	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1 - A26 North	0.66	5.83	2.0	A
2 - B2017 Tudeley Rd	0.42	5.53	0.7	A
3 - A26 south	0.69	6.57	2.3	A
4 - Five Oak Green Rd	0.19	5.09	0.2	A

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - A26 North	851	385	2008	0.424	848	0.7	3.166	A
2 - B2017 Tudeley Rd	328	554	1297	0.253	327	0.3	3.750	A
3 - A26 south	874	151	1888	0.463	871	0.9	3.639	A
4 - Five Oak Green Rd	118	980	1178	0.100	118	0.1	3.460	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - A26 North	1017	460	1952	0.521	1015	1.1	3.920	A
2 - B2017 Tudeley Rd	392	663	1230	0.319	391	0.5	4.340	A
3 - A26 south	1044	181	1869	0.558	1042	1.3	4.481	A
4 - Five Oak Green Rd	141	1173	1058	0.133	141	0.2	4.002	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - A26 North	1245	563	1877	0.663	1242	2.0	5.755	A
2 - B2017 Tudeley Rd	480	811	1139	0.421	479	0.7	5.504	A
3 - A26 south	1278	222	1843	0.693	1274	2.3	6.477	A
4 - Five Oak Green Rd	173	1435	896	0.193	173	0.2	5.071	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - A26 North	1245	565	1876	0.664	1245	2.0	5.827	A
2 - B2017 Tudeley Rd	480	814	1138	0.422	480	0.7	5.533	A
3 - A26 south	1278	222	1843	0.694	1278	2.3	6.568	A
4 - Five Oak Green Rd	173	1439	893	0.194	173	0.2	5.093	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - A26 North	1017	463	1951	0.521	1020	1.1	3.969	A
2 - B2017 Tudeley Rd	392	667	1228	0.319	393	0.5	4.367	A
3 - A26 south	1044	182	1868	0.559	1048	1.3	4.546	A
4 - Five Oak Green Rd	141	1179	1054	0.134	141	0.2	4.023	A

18:15 - 18:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - A26 North	851	387	2006	0.424	853	0.8	3.193	A
2 - B2017 Tudeley Rd	328	557	1295	0.254	329	0.3	3.773	A
3 - A26 south	874	152	1887	0.463	876	0.9	3.679	A
4 - Five Oak Green Rd	118	986	1174	0.101	118	0.1	3.475	A

Local Plan 2038, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout	1, 2, 3, 4	123.76	F

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)
D7	Local Plan 2038	AM	ONE HOUR	08:00	09:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A26 North		✓	808	100.000
2 - B2017 Tudeley Rd		✓	1241	100.000
3 - A26 south		✓	813	100.000
4 - Five Oak Green Rd		✓	98	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - A26 North	2 - B2017 Tudeley Rd	3 - A26 south	4 - Five Oak Green Rd
From	1 - A26 North	0	142	666	0
	2 - B2017 Tudeley Rd	654	0	539	48
	3 - A26 south	585	162	0	66
	4 - Five Oak Green Rd	0	53	45	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A26 North	2 - B2017 Tudeley Rd	3 - A26 south	4 - Five Oak Green Rd
From	1 - A26 North	0	3	14	0
	2 - B2017 Tudeley Rd	1	18	1	0
	3 - A26 south	6	5	0	0
	4 - Five Oak Green Rd	0	0	6	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1 - A26 North	0.43	3.38	0.8	A
2 - B2017 Tudeley Rd	1.18	288.96	114.0	F
3 - A26 south	0.57	5.59	1.4	A
4 - Five Oak Green Rd	0.12	4.68	0.1	A

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - A26 North	608	195	2146	0.283	607	0.4	2.614	A
2 - B2017 Tudeley Rd	934	534	1309	0.714	925	2.4	9.231	A
3 - A26 south	612	523	1655	0.370	610	0.6	3.619	A
4 - Five Oak Green Rd	74	1047	1136	0.065	73	0.1	3.478	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - A26 North	726	233	2118	0.343	726	0.6	2.891	A
2 - B2017 Tudeley Rd	1116	639	1245	0.896	1097	7.0	22.236	C
3 - A26 south	731	621	1594	0.459	730	0.9	4.381	A
4 - Five Oak Green Rd	88	1249	1011	0.087	88	0.1	4.004	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - A26 North	890	286	2080	0.428	889	0.8	3.377	A
2 - B2017 Tudeley Rd	1366	782	1157	1.180	1149	61.4	118.163	F
3 - A26 south	895	650	1576	0.568	893	1.4	5.539	A
4 - Five Oak Green Rd	108	1426	901	0.120	108	0.1	4.656	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - A26 North	890	286	2080	0.428	890	0.8	3.384	A
2 - B2017 Tudeley Rd	1366	783	1157	1.181	1156	114.0	276.383	F
3 - A26 south	895	654	1573	0.569	895	1.4	5.590	A
4 - Five Oak Green Rd	108	1432	898	0.120	108	0.1	4.678	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - A26 North	726	234	2118	0.343	727	0.6	2.898	A
2 - B2017 Tudeley Rd	1116	640	1244	0.897	1233	84.6	288.958	F
3 - A26 south	731	698	1546	0.473	733	1.0	4.670	A
4 - Five Oak Green Rd	88	1323	965	0.091	88	0.1	4.217	A

09:15 - 09:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - A26 North	608	196	2146	0.284	609	0.4	2.621	A
2 - B2017 Tudeley Rd	934	536	1308	0.714	1260	3.1	117.659	F
3 - A26 south	612	713	1536	0.398	613	0.7	4.112	A
4 - Five Oak Green Rd	74	1227	1024	0.072	74	0.1	3.888	A

Local Plan 2038, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout	1, 2, 3, 4	8.22	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)
D8	Local Plan 2038	PM	ONE HOUR	17:00	18:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A26 North		✓	1173	100.000
2 - B2017 Tudeley Rd		✓	322	100.000
3 - A26 south		✓	1319	100.000
4 - Five Oak Green Rd		✓	174	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - A26 North	2 - B2017 Tudeley Rd	3 - A26 south	4 - Five Oak Green Rd
From	1 - A26 North	0	608	565	0
	2 - B2017 Tudeley Rd	148	0	169	5
	3 - A26 south	649	617	0	53
	4 - Five Oak Green Rd	52	61	61	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A26 North	2 - B2017 Tudeley Rd	3 - A26 south	4 - Five Oak Green Rd
From	1 - A26 North	0	1	4	0
	2 - B2017 Tudeley Rd	2	0	0	29
	3 - A26 south	5	1	0	1
	4 - Five Oak Green Rd	4	2	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1 - A26 North	0.76	9.12	3.2	A
2 - B2017 Tudeley Rd	0.29	4.24	0.4	A
3 - A26 south	0.77	8.70	3.4	A
4 - Five Oak Green Rd	0.23	5.83	0.3	A

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - A26 North	883	554	1884	0.469	880	0.9	3.656	A
2 - B2017 Tudeley Rd	242	469	1349	0.180	242	0.2	3.289	A
3 - A26 south	993	115	1911	0.520	989	1.1	4.000	A
4 - Five Oak Green Rd	131	1060	1128	0.116	130	0.1	3.673	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - A26 North	1055	663	1804	0.584	1052	1.4	4.889	A
2 - B2017 Tudeley Rd	289	562	1292	0.224	289	0.3	3.635	A
3 - A26 south	1186	137	1896	0.625	1183	1.7	5.179	A
4 - Five Oak Green Rd	156	1269	999	0.157	156	0.2	4.351	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - A26 North	1291	810	1697	0.761	1285	3.1	8.797	A
2 - B2017 Tudeley Rd	355	686	1216	0.291	354	0.4	4.226	A
3 - A26 south	1452	168	1877	0.774	1445	3.4	8.454	A
4 - Five Oak Green Rd	192	1550	824	0.232	191	0.3	5.788	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - A26 North	1291	814	1695	0.762	1291	3.2	9.124	A
2 - B2017 Tudeley Rd	355	689	1214	0.292	355	0.4	4.240	A
3 - A26 south	1452	168	1877	0.774	1452	3.4	8.704	A
4 - Five Oak Green Rd	192	1557	820	0.234	192	0.3	5.831	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - A26 North	1055	668	1801	0.586	1061	1.5	5.033	A
2 - B2017 Tudeley Rd	289	566	1289	0.225	290	0.3	3.651	A
3 - A26 south	1186	138	1896	0.625	1193	1.7	5.318	A
4 - Five Oak Green Rd	156	1278	993	0.158	157	0.2	4.388	A

18:15 - 18:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - A26 North	883	558	1881	0.469	885	0.9	3.711	A
2 - B2017 Tudeley Rd	242	472	1347	0.180	243	0.2	3.304	A
3 - A26 south	993	115	1910	0.520	995	1.1	4.061	A
4 - Five Oak Green Rd	131	1067	1124	0.117	131	0.1	3.694	A

Local Plan 2038 MS, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout	1, 2, 3, 4	113.12	F

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)
D9	Local Plan 2038 MS	AM	ONE HOUR	08:00	09:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A26 North		✓	808	100.000
2 - B2017 Tudeley Rd		✓	1220	100.000
3 - A26 south		✓	779	100.000
4 - Five Oak Green Rd		✓	65	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - A26 North	2 - B2017 Tudeley Rd	3 - A26 south	4 - Five Oak Green Rd
From	1 - A26 North	0	134	674	0
	2 - B2017 Tudeley Rd	622	0	552	46
	3 - A26 south	592	139	0	48
	4 - Five Oak Green Rd	0	19	46	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A26 North	2 - B2017 Tudeley Rd	3 - A26 south	4 - Five Oak Green Rd
From	1 - A26 North	0	3	15	0
	2 - B2017 Tudeley Rd	1	18	1	0
	3 - A26 south	4	6	0	1
	4 - Five Oak Green Rd	0	0	3	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1 - A26 North	0.42	3.29	0.8	A
2 - B2017 Tudeley Rd	1.17	260.61	105.3	F
3 - A26 south	0.54	5.13	1.2	A
4 - Five Oak Green Rd	0.08	4.32	0.1	A

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - A26 North	608	153	2177	0.279	607	0.4	2.584	A
2 - B2017 Tudeley Rd	918	540	1305	0.704	909	2.3	8.984	A
3 - A26 south	586	498	1671	0.351	584	0.6	3.443	A
4 - Five Oak Green Rd	49	1012	1158	0.042	49	0.0	3.313	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - A26 North	726	183	2155	0.337	726	0.6	2.842	A
2 - B2017 Tudeley Rd	1097	647	1240	0.884	1080	6.4	20.861	C
3 - A26 south	700	591	1612	0.434	699	0.8	4.103	A
4 - Five Oak Green Rd	58	1207	1037	0.056	58	0.1	3.755	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - A26 North	890	224	2125	0.419	889	0.8	3.284	A
2 - B2017 Tudeley Rd	1343	792	1151	1.167	1141	56.9	111.054	F
3 - A26 south	858	625	1591	0.539	856	1.2	5.089	A
4 - Five Oak Green Rd	72	1385	927	0.077	71	0.1	4.298	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - A26 North	890	225	2125	0.419	890	0.8	3.287	A
2 - B2017 Tudeley Rd	1343	793	1151	1.167	1150	105.3	257.903	F
3 - A26 south	858	630	1588	0.540	858	1.2	5.131	A
4 - Five Oak Green Rd	72	1391	923	0.078	72	0.1	4.316	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - A26 North	726	184	2155	0.337	727	0.6	2.849	A
2 - B2017 Tudeley Rd	1097	648	1239	0.885	1228	72.6	260.612	F
3 - A26 south	700	672	1562	0.448	702	0.9	4.369	A
4 - Five Oak Green Rd	58	1284	989	0.059	59	0.1	3.951	A

09:15 - 09:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - A26 North	608	154	2176	0.280	609	0.4	2.593	A
2 - B2017 Tudeley Rd	918	543	1304	0.704	1198	2.7	84.957	F
3 - A26 south	586	656	1572	0.373	587	0.6	3.814	A
4 - Five Oak Green Rd	49	1162	1065	0.046	49	0.0	3.617	A

Local Plan 2038 MS, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout	1, 2, 3, 4	7.69	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)
D10	Local Plan 2038 MS	PM	ONE HOUR	17:00	18:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A26 North		✓	1176	100.000
2 - B2017 Tudeley Rd		✓	289	100.000
3 - A26 south		✓	1286	100.000
4 - Five Oak Green Rd		✓	160	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - A26 North	2 - B2017 Tudeley Rd	3 - A26 south	4 - Five Oak Green Rd
From	1 - A26 North	0	566	610	0
	2 - B2017 Tudeley Rd	141	0	144	4
	3 - A26 south	645	594	0	47
	4 - Five Oak Green Rd	49	55	56	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A26 North	2 - B2017 Tudeley Rd	3 - A26 south	4 - Five Oak Green Rd
From	1 - A26 North	0	1	3	0
	2 - B2017 Tudeley Rd	2	0	0	31
	3 - A26 south	5	1	0	0
	4 - Five Oak Green Rd	4	2	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1 - A26 North	0.75	8.58	3.0	A
2 - B2017 Tudeley Rd	0.27	4.20	0.4	A
3 - A26 south	0.75	7.93	3.1	A
4 - Five Oak Green Rd	0.21	5.50	0.3	A

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - A26 North	885	529	1903	0.465	882	0.9	3.586	A
2 - B2017 Tudeley Rd	218	499	1330	0.164	217	0.2	3.274	A
3 - A26 south	968	109	1914	0.506	964	1.0	3.882	A
4 - Five Oak Green Rd	120	1035	1144	0.105	120	0.1	3.580	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - A26 North	1057	633	1827	0.579	1055	1.4	4.748	A
2 - B2017 Tudeley Rd	260	598	1270	0.205	260	0.3	3.608	A
3 - A26 south	1156	130	1901	0.608	1154	1.6	4.947	A
4 - Five Oak Green Rd	144	1238	1018	0.141	144	0.2	4.196	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - A26 North	1295	773	1724	0.751	1288	3.0	8.314	A
2 - B2017 Tudeley Rd	318	730	1189	0.268	318	0.4	4.182	A
3 - A26 south	1416	159	1883	0.752	1410	3.0	7.749	A
4 - Five Oak Green Rd	176	1514	847	0.208	176	0.3	5.460	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - A26 North	1295	776	1722	0.752	1295	3.0	8.583	A
2 - B2017 Tudeley Rd	318	733	1187	0.268	318	0.4	4.195	A
3 - A26 south	1416	160	1882	0.752	1416	3.1	7.929	A
4 - Five Oak Green Rd	176	1519	844	0.209	176	0.3	5.495	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - A26 North	1057	637	1824	0.580	1064	1.4	4.874	A
2 - B2017 Tudeley Rd	260	602	1267	0.205	260	0.3	3.621	A
3 - A26 south	1156	131	1901	0.608	1162	1.6	5.053	A
4 - Five Oak Green Rd	144	1246	1013	0.142	144	0.2	4.227	A

18:15 - 18:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - A26 North	885	532	1900	0.466	887	0.9	3.636	A
2 - B2017 Tudeley Rd	218	503	1328	0.164	218	0.2	3.284	A
3 - A26 south	968	109	1914	0.506	970	1.1	3.937	A
4 - Five Oak Green Rd	120	1041	1140	0.106	121	0.1	3.601	A

Junctions 9

ARCADY 9 - Roundabout Module

Version: 9.0.2.5947

Filename: 8 - A26 Woodgate Way B2017 Tudeley Road B2017_flare.j9
Path: T:\Tunbridge Wells\3. Technical\3.5 Junction models\Models\2022 Models\Junction 8_Tudeley Rd\Direct Saturn flows
Report generation date: 09/03/2022 09:25:31

Summary of junction performance

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
	Mitigation 2038							
1 - A26 North	0.8	3.06	0.42	A	3.5	9.94	0.79	A
2 - B2017 Tudeley Rd	5.2	14.36	0.84	B	0.2	2.72	0.19	A
3 - A26 south	1.3	5.71	0.56	A	3.0	7.69	0.75	A
4 - Five Oak Green Rd	0.1	5.36	0.08	A	0.3	5.39	0.21	A

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

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

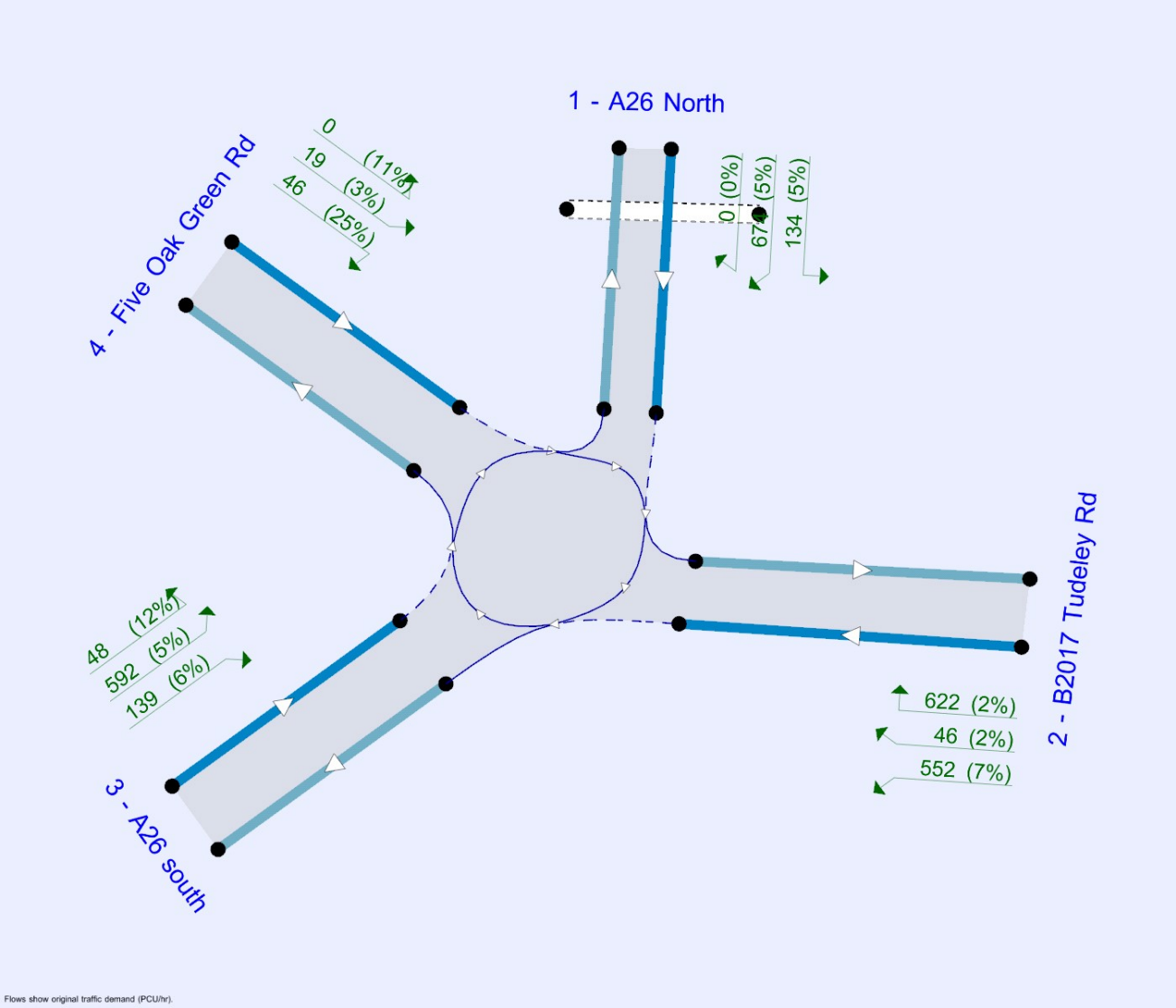
File summary

File Description

Title	(untitled)
Location	
Site number	
Date	13/10/2020
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	SWECO\GBGWJY
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	PCU	PCU	perHour	s	-Min	perMin



The junction diagram reflects the last run of Junctions.

Analysis Options

Calculate Queue Percentiles	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
		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)
D7	Mitigation 2038	AM	ONE HOUR	08:00	09:30	15
D8	Mitigation 2038	PM	ONE HOUR	17:00	18:30	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

Mitigation 2038, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	2 - B2017 Tudeley Rd - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Pedestrian Crossing	1 - A26 North - Pedestrian crossing	Pedestrian crossing uses default flow of 0. Is this correct?

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout	1, 2, 3, 4	8.63	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	A26 North	
2	B2017 Tudeley Rd	
3	A26 south	
4	Five Oak Green Rd	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1 - A26 North	5.20	9.16	23.3	25.5	46.1	40.9	
2 - B2017 Tudeley Rd	2.96	8.26	65.0	26.0	46.1	33.6	
3 - A26 south	4.94	12.72	16.0	13.1	46.1	74.5	
4 - Five Oak Green Rd	3.48	8.06	24.4	18.6	46.1	49.4	

Pelican/Puffin Crossings

Arm	Space between crossing and junction entry (Signalised) (PCU)	Amber time preceding red (s)	Amber time regarded as green (s)	Time from traffic red start to green man start (s)	Time period green man shown (s)	Clearance Period (s)	Traffic minimum green (s)
1 - A26 North	4.00	3.00	2.90	1.00	6.00	6.00	7.00

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1 - A26 North	0.730	2289
2 - B2017 Tudeley Rd	0.714	2168
3 - A26 south	0.626	1983
4 - Five Oak Green Rd	0.620	1785

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D7	Mitigation 2038	AM	ONE HOUR	08:00	09:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A26 North		✓	808	100.000
2 - B2017 Tudeley Rd		✓	1220	100.000
3 - A26 south		✓	779	100.000
4 - Five Oak Green Rd		✓	65	100.000

Demand overview (Pedestrians)

Arm	Average pedestrian flow (Ped/hr)
1 - A26 North	0.00
2 - B2017 Tudeley Rd	
3 - A26 south	
4 - Five Oak Green Rd	

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - A26 North	2 - B2017 Tudeley Rd	3 - A26 south	4 - Five Oak Green Rd
From	1 - A26 North	0	134	674	0
	2 - B2017 Tudeley Rd	622	0	552	46
	3 - A26 south	592	139	0	48
	4 - Five Oak Green Rd	0	19	46	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A26 North	2 - B2017 Tudeley Rd	3 - A26 south	4 - Five Oak Green Rd
From	1 - A26 North	0	5	5	0
	2 - B2017 Tudeley Rd	2	0	7	2
	3 - A26 south	5	6	0	12
	4 - Five Oak Green Rd	11	3	25	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1 - A26 North	0.42	3.06	0.8	A
2 - B2017 Tudeley Rd	0.84	14.36	5.2	B
3 - A26 south	0.56	5.71	1.3	A
4 - Five Oak Green Rd	0.08	5.36	0.1	A

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - A26 North	608	153	0.00	2177	0.279	607	0.4	2.405	A
2 - B2017 Tudeley Rd	918	541		1782	0.516	914	1.1	4.303	A
3 - A26 south	586	501		1670	0.351	584	0.6	3.493	A
4 - Five Oak Green Rd	49	1014		1157	0.042	49	0.1	3.823	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - A26 North	726	183	0.00	2155	0.337	726	0.5	2.645	A
2 - B2017 Tudeley Rd	1097	647		1706	0.643	1094	1.8	6.101	A
3 - A26 south	700	599		1608	0.435	699	0.8	4.177	A
4 - Five Oak Green Rd	58	1214		1033	0.057	58	0.1	4.346	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - A26 North	890	224	0.00	2125	0.419	889	0.8	3.056	A
2 - B2017 Tudeley Rd	1343	792		1602	0.838	1331	5.0	13.259	B
3 - A26 south	858	729		1527	0.562	856	1.3	5.642	A
4 - Five Oak Green Rd	72	1481		867	0.083	71	0.1	5.323	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - A26 North	890	225	0.00	2125	0.419	890	0.8	3.060	A
2 - B2017 Tudeley Rd	1343	793		1601	0.839	1342	5.2	14.356	B
3 - A26 south	858	735		1523	0.563	858	1.3	5.711	A
4 - Five Oak Green Rd	72	1489		862	0.083	72	0.1	5.356	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - A26 North	726	184	0.00	2154	0.337	727	0.5	2.651	A
2 - B2017 Tudeley Rd	1097	648		1705	0.643	1110	1.9	6.436	A
3 - A26 south	700	608		1603	0.437	702	0.8	4.230	A
4 - Five Oak Green Rd	58	1225		1026	0.057	59	0.1	4.380	A

09:15 - 09:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - A26 North	608	154	0.00	2176	0.280	609	0.4	2.411	A
2 - B2017 Tudeley Rd	918	543		1780	0.516	922	1.1	4.386	A
3 - A26 south	586	505		1667	0.352	587	0.6	3.522	A
4 - Five Oak Green Rd	49	1021		1152	0.042	49	0.1	3.841	A

Mitigation 2038, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	2 - B2017 Tudeley Rd - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs.

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout	1, 2, 3, 4	7.98	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)
D8	Mitigation 2038	PM	ONE HOUR	17:00	18:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A26 North		✓	1176	100.000
2 - B2017 Tudeley Rd		✓	289	100.000
3 - A26 south		✓	1286	100.000
4 - Five Oak Green Rd		✓	160	100.000

Demand overview (Pedestrians)

Arm	Average pedestrian flow (Ped/hr)
1 - A26 North	100.00
2 - B2017 Tudeley Rd	
3 - A26 south	
4 - Five Oak Green Rd	

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - A26 North	2 - B2017 Tudeley Rd	3 - A26 south	4 - Five Oak Green Rd
From	1 - A26 North	0	566	610	0
	2 - B2017 Tudeley Rd	141	0	144	4
	3 - A26 south	645	594	0	47
	4 - Five Oak Green Rd	49	55	56	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A26 North	2 - B2017 Tudeley Rd	3 - A26 south	4 - Five Oak Green Rd
From	1 - A26 North	0	0	0	0
	2 - B2017 Tudeley Rd	0	0	0	0
	3 - A26 south	0	0	0	0
	4 - Five Oak Green Rd	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1 - A26 North	0.79	9.94	3.5	A
2 - B2017 Tudeley Rd	0.19	2.72	0.2	A
3 - A26 south	0.75	7.69	3.0	A
4 - Five Oak Green Rd	0.21	5.39	0.3	A

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - A26 North	885	529	75.29	1697	0.522	881	1.1	4.392	A
2 - B2017 Tudeley Rd	218	499		1811	0.120	217	0.1	2.258	A
3 - A26 south	968	109		1915	0.506	964	1.0	3.771	A
4 - Five Oak Green Rd	120	1035		1144	0.105	120	0.1	3.514	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - A26 North	1057	633	89.90	1659	0.637	1055	1.7	5.927	A
2 - B2017 Tudeley Rd	260	597		1741	0.149	260	0.2	2.429	A
3 - A26 south	1156	130		1902	0.608	1154	1.5	4.801	A
4 - Five Oak Green Rd	144	1239		1018	0.141	144	0.2	4.118	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - A26 North	1295	773	110.10	1643	0.788	1288	3.5	9.935	A
2 - B2017 Tudeley Rd	318	729		1647	0.193	318	0.2	2.709	A
3 - A26 south	1416	160		1883	0.752	1410	2.9	7.520	A
4 - Five Oak Green Rd	176	1514		847	0.208	176	0.3	5.362	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - A26 North	1295	776	110.10	1703	0.760	1296	3.3	8.884	A
2 - B2017 Tudeley Rd	318	734		1644	0.194	318	0.2	2.715	A
3 - A26 south	1416	160		1883	0.752	1416	3.0	7.691	A
4 - Five Oak Green Rd	176	1519		844	0.209	176	0.3	5.393	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - A26 North	1057	637	89.90	1728	0.612	1064	1.6	5.472	A
2 - B2017 Tudeley Rd	260	602		1737	0.150	260	0.2	2.436	A
3 - A26 south	1156	130		1902	0.608	1162	1.6	4.901	A
4 - Five Oak Green Rd	144	1246		1013	0.142	144	0.2	4.146	A

18:15 - 18:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - A26 North	885	532	75.29	1742	0.508	888	1.0	4.225	A
2 - B2017 Tudeley Rd	218	503		1809	0.120	218	0.1	2.262	A
3 - A26 south	968	109		1915	0.506	970	1.0	3.822	A
4 - Five Oak Green Rd	120	1041		1140	0.106	121	0.1	3.531	A

Junction 22: A21 / A228 / Tesco

Arcady

- Reference Case
- Local Plan
- Local Plan Mitigation Scenario

Junctions 9

ARCADY 9 - Roundabout Module

Filename: 22 - A21_A228 Pembury Road_east.j9
Path: T:\Tunbridge Wells\3. Technical\3.5 Junction models\Models\2022 Models\Junction 22_Tesco\Direct Saturn flows
Report generation date: 09/03/2022 09:26:59

Summary of junction performance

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
	Ref Case 2038							
1 - A21	0.7	4.06	0.39	A	0.6	3.86	0.36	A
2 - A228 Pembury Northern Bypass	1.1	4.63	0.50	A	1.4	4.92	0.58	A
3 - Tesco	0.2	7.09	0.15	A	1.4	14.45	0.59	B
4 - A228 Pembury Road	1.1	3.95	0.52	A	2.0	5.55	0.66	A
	Local Plan 2038							
1 - A21	0.6	4.12	0.33	A	0.8	4.97	0.44	A
2 - A228 Pembury Northern Bypass	1.1	4.34	0.50	A	1.6	5.40	0.61	A
3 - Tesco	0.3	6.84	0.20	A	2.1	19.90	0.69	C
4 - A228 Pembury Road	1.3	4.21	0.55	A	3.6	8.74	0.78	A
	Local Plan MS 2038							
1 - A21	0.5	4.04	0.32	A	0.7	4.73	0.41	A
2 - A228 Pembury Northern Bypass	1.1	4.36	0.51	A	1.3	4.77	0.57	A
3 - Tesco	0.2	6.77	0.19	A	1.4	13.62	0.58	B
4 - A228 Pembury Road	1.3	4.33	0.56	A	3.1	7.68	0.75	A

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

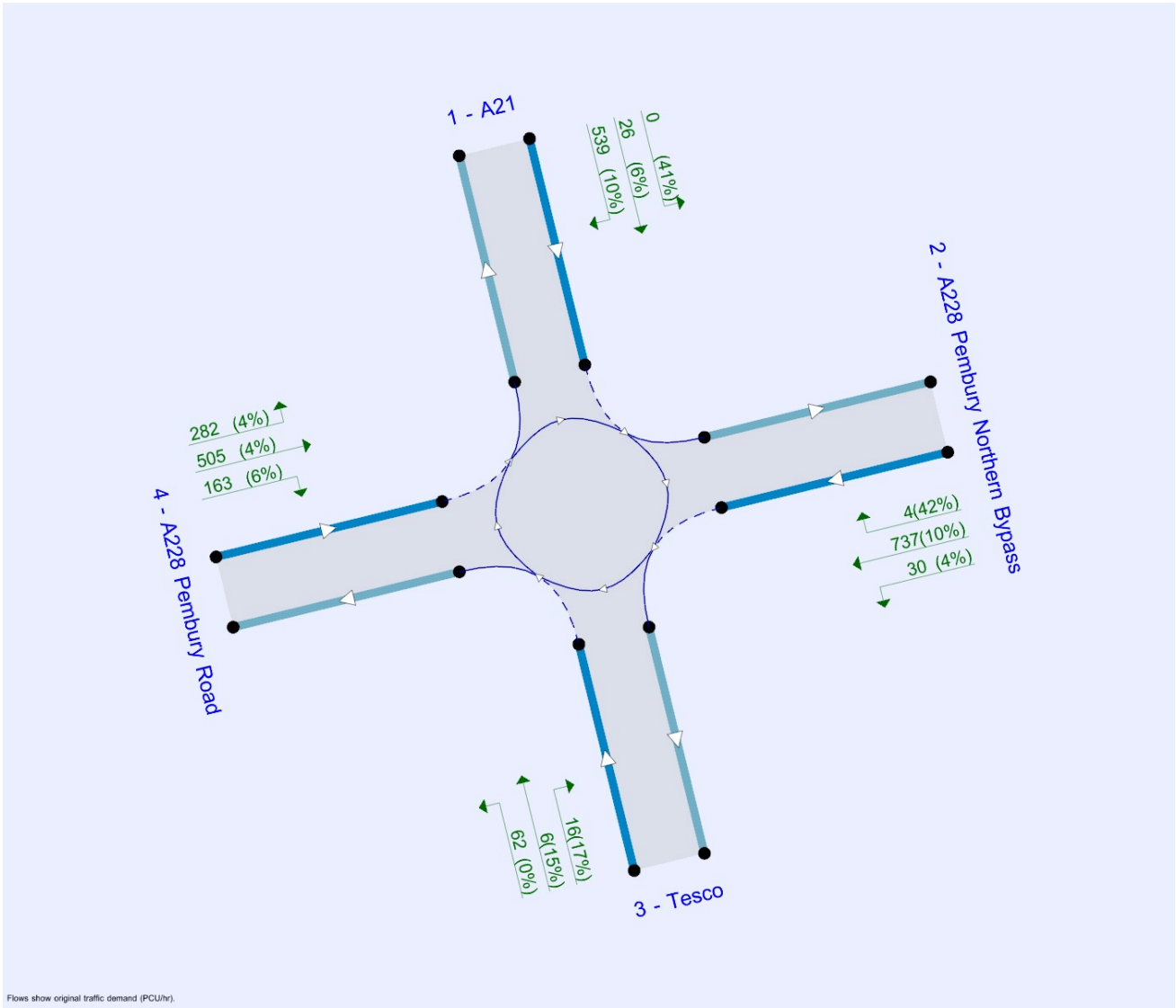
File summary

File Description

Title	(untitled)
Location	
Site number	
Date	14/10/2020
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	SWECO\GBGWJY
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	PCU	PCU	perHour	s	-Min	perMin



The junction diagram reflects the last run of Junctions.

Analysis Options

Calculate Queue Percentiles	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
		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)
D5	Ref Case 2038	AM	ONE HOUR	08:00	09:30	15
D6	Ref Case 2038	PM	ONE HOUR	17:00	18:30	15
D7	Local Plan 2038	AM	ONE HOUR	08:00	09:30	15
D8	Local Plan 2038	PM	ONE HOUR	17:00	18:30	15
D9	Local Plan MS 2038	AM	ONE HOUR	08:00	09:30	15
D10	Local Plan MS 2038	PM	ONE HOUR	17:00	18:30	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

Ref Case 2038, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout	1, 2, 3, 4	4.31	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	A21	
2	A228 Pembury Northern Bypass	
3	Tesco	
4	A228 Pembury Road	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1 - A21	4.80	11.10	14.2	23.7	40.0	46.2	
2 - A228 Pembury Northern Bypass	7.10	9.60	7.3	24.1	40.0	58.0	
3 - Tesco	4.30	6.20	4.0	19.7	40.0	53.1	
4 - A228 Pembury Road	6.10	9.40	5.8	23.1	40.0	56.2	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1 - A21	0.714	2133
2 - A228 Pembury Northern Bypass	0.733	2290
3 - Tesco	0.559	1407
4 - A228 Pembury Road	0.680	2017

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D5	Ref Case 2038	AM	ONE HOUR	08:00	09:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A21		✓	565	100.000
2 - A228 Pembury Northern Bypass		✓	771	100.000
3 - Tesco		✓	84	100.000
4 - A228 Pembury Road		✓	950	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - A21	2 - A228 Pembury Northern Bypass	3 - Tesco	4 - A228 Pembury Road
From	1 - A21	0	0	26	539
	2 - A228 Pembury Northern Bypass	4	0	30	737
	3 - Tesco	6	16	0	62
	4 - A228 Pembury Road	282	505	163	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A21	2 - A228 Pembury Northern Bypass	3 - Tesco	4 - A228 Pembury Road
From	1 - A21	0	41	6	10
	2 - A228 Pembury Northern Bypass	42	0	4	10
	3 - Tesco	15	17	0	0
	4 - A228 Pembury Road	4	4	6	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1 - A21	0.39	4.06	0.7	A
2 - A228 Pembury Northern Bypass	0.50	4.63	1.1	A
3 - Tesco	0.15	7.09	0.2	A
4 - A228 Pembury Road	0.52	3.95	1.1	A

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - A21	425	513	1766	0.241	424	0.3	2.942	A
2 - A228 Pembury Northern Bypass	580	546	1890	0.307	579	0.5	3.012	A
3 - Tesco	63	960	871	0.073	63	0.1	4.625	A
4 - A228 Pembury Road	715	19	2004	0.357	713	0.6	2.904	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - A21	508	614	1694	0.300	507	0.5	3.328	A
2 - A228 Pembury Northern Bypass	693	654	1811	0.383	692	0.7	3.534	A
3 - Tesco	76	1149	765	0.099	75	0.1	5.422	A
4 - A228 Pembury Road	854	23	2001	0.427	853	0.8	3.270	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - A21	622	752	1596	0.390	621	0.7	4.051	A
2 - A228 Pembury Northern Bypass	849	800	1704	0.498	847	1.1	4.610	A
3 - Tesco	92	1407	621	0.149	92	0.2	7.067	A
4 - A228 Pembury Road	1046	29	1998	0.524	1045	1.1	3.934	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - A21	622	753	1595	0.390	622	0.7	4.061	A
2 - A228 Pembury Northern Bypass	849	802	1703	0.498	849	1.1	4.631	A
3 - Tesco	92	1409	620	0.149	92	0.2	7.090	A
4 - A228 Pembury Road	1046	29	1998	0.524	1046	1.1	3.945	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - A21	508	616	1693	0.300	509	0.5	3.342	A
2 - A228 Pembury Northern Bypass	693	656	1810	0.383	695	0.7	3.551	A
3 - Tesco	76	1153	763	0.099	76	0.1	5.444	A
4 - A228 Pembury Road	854	23	2001	0.427	855	0.8	3.283	A

09:15 - 09:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - A21	425	516	1765	0.241	426	0.4	2.952	A
2 - A228 Pembury Northern Bypass	580	549	1888	0.307	581	0.5	3.030	A
3 - Tesco	63	965	868	0.073	63	0.1	4.645	A
4 - A228 Pembury Road	715	20	2004	0.357	716	0.6	2.917	A

Ref Case 2038, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout	1, 2, 3, 4	6.05	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)
D6	Ref Case 2038	PM	ONE HOUR	17:00	18:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A21		✓	488	100.000
2 - A228 Pembury Northern Bypass		✓	929	100.000
3 - Tesco		✓	323	100.000
4 - A228 Pembury Road		✓	1162	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - A21	2 - A228 Pembury Northern Bypass	3 - Tesco	4 - A228 Pembury Road
From	1 - A21	0	0	9	479
	2 - A228 Pembury Northern Bypass	0	0	104	825
	3 - Tesco	20	73	0	230
	4 - A228 Pembury Road	415	595	152	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A21	2 - A228 Pembury Northern Bypass	3 - Tesco	4 - A228 Pembury Road
From	1 - A21	0	26	0	2
	2 - A228 Pembury Northern Bypass	13	0	0	3
	3 - Tesco	0	1	0	0
	4 - A228 Pembury Road	2	4	3	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1 - A21	0.36	3.86	0.6	A
2 - A228 Pembury Northern Bypass	0.58	4.92	1.4	A
3 - Tesco	0.59	14.45	1.4	B
4 - A228 Pembury Road	0.66	5.55	2.0	A

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - A21	367	615	1694	0.217	366	0.3	2.762	A
2 - A228 Pembury Northern Bypass	699	480	1938	0.361	697	0.6	2.972	A
3 - Tesco	243	979	860	0.283	242	0.4	5.817	A
4 - A228 Pembury Road	875	70	1970	0.444	872	0.8	3.371	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - A21	439	736	1607	0.273	438	0.4	3.139	A
2 - A228 Pembury Northern Bypass	835	575	1869	0.447	834	0.8	3.567	A
3 - Tesco	290	1171	753	0.386	289	0.6	7.771	A
4 - A228 Pembury Road	1045	83	1961	0.533	1043	1.2	4.042	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - A21	537	900	1490	0.361	537	0.6	3.845	A
2 - A228 Pembury Northern Bypass	1023	703	1775	0.576	1021	1.4	4.885	A
3 - Tesco	356	1433	606	0.586	353	1.4	14.057	B
4 - A228 Pembury Road	1279	102	1948	0.657	1276	1.9	5.500	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - A21	537	903	1489	0.361	537	0.6	3.858	A
2 - A228 Pembury Northern Bypass	1023	705	1774	0.577	1023	1.4	4.919	A
3 - Tesco	356	1436	605	0.588	356	1.4	14.449	B
4 - A228 Pembury Road	1279	102	1948	0.657	1279	2.0	5.552	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - A21	439	740	1605	0.273	439	0.4	3.153	A
2 - A228 Pembury Northern Bypass	835	577	1868	0.447	837	0.8	3.592	A
3 - Tesco	290	1175	751	0.387	293	0.6	7.942	A
4 - A228 Pembury Road	1045	84	1960	0.533	1048	1.2	4.083	A

18:15 - 18:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - A21	367	618	1691	0.217	368	0.3	2.775	A
2 - A228 Pembury Northern Bypass	699	482	1937	0.361	700	0.6	2.993	A
3 - Tesco	243	983	858	0.283	244	0.4	5.889	A
4 - A228 Pembury Road	875	70	1970	0.444	876	0.8	3.402	A

Local Plan 2038, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout	1, 2, 3, 4	4.38	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)
D7	Local Plan 2038	AM	ONE HOUR	08:00	09:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A21		✓	451	100.000
2 - A228 Pembury Northern Bypass		✓	828	100.000
3 - Tesco		✓	127	100.000
4 - A228 Pembury Road		✓	993	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - A21	2 - A228 Pembury Northern Bypass	3 - Tesco	4 - A228 Pembury Road
From	1 - A21	0	23	28	400
	2 - A228 Pembury Northern Bypass	7	0	53	768
	3 - Tesco	7	29	0	91
	4 - A228 Pembury Road	207	622	164	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A21	2 - A228 Pembury Northern Bypass	3 - Tesco	4 - A228 Pembury Road
From	1 - A21	0	26	7	14
	2 - A228 Pembury Northern Bypass	38	0	1	9
	3 - Tesco	14	13	0	0
	4 - A228 Pembury Road	5	4	5	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1 - A21	0.33	4.12	0.6	A
2 - A228 Pembury Northern Bypass	0.50	4.34	1.1	A
3 - Tesco	0.20	6.84	0.3	A
4 - A228 Pembury Road	0.55	4.21	1.3	A

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - A21	340	611	1696	0.200	338	0.3	3.021	A
2 - A228 Pembury Northern Bypass	623	444	1965	0.317	621	0.5	2.908	A
3 - Tesco	96	882	915	0.105	95	0.1	4.542	A
4 - A228 Pembury Road	748	32	1995	0.375	745	0.6	2.998	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - A21	405	732	1610	0.252	405	0.4	3.407	A
2 - A228 Pembury Northern Bypass	744	532	1901	0.392	744	0.7	3.378	A
3 - Tesco	114	1055	818	0.140	114	0.2	5.290	A
4 - A228 Pembury Road	893	39	1991	0.448	892	0.8	3.414	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - A21	497	896	1493	0.332	496	0.6	4.115	A
2 - A228 Pembury Northern Bypass	912	651	1813	0.503	910	1.1	4.323	A
3 - Tesco	140	1292	685	0.204	139	0.3	6.814	A
4 - A228 Pembury Road	1093	47	1985	0.551	1092	1.3	4.197	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - A21	497	897	1492	0.333	497	0.6	4.123	A
2 - A228 Pembury Northern Bypass	912	652	1813	0.503	912	1.1	4.340	A
3 - Tesco	140	1294	684	0.204	140	0.3	6.837	A
4 - A228 Pembury Road	1093	47	1985	0.551	1093	1.3	4.212	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - A21	405	734	1609	0.252	406	0.4	3.416	A
2 - A228 Pembury Northern Bypass	744	533	1900	0.392	746	0.7	3.393	A
3 - Tesco	114	1058	816	0.140	115	0.2	5.311	A
4 - A228 Pembury Road	893	39	1991	0.448	894	0.9	3.433	A

09:15 - 09:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - A21	340	614	1694	0.200	340	0.3	3.032	A
2 - A228 Pembury Northern Bypass	623	446	1963	0.317	624	0.5	2.921	A
3 - Tesco	96	886	912	0.105	96	0.1	4.561	A
4 - A228 Pembury Road	748	32	1995	0.375	748	0.6	3.017	A

Local Plan 2038, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout	1, 2, 3, 4	8.40	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)
D8	Local Plan 2038	PM	ONE HOUR	17:00	18:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A21		✓	523	100.000
2 - A228 Pembury Northern Bypass		✓	955	100.000
3 - Tesco		✓	364	100.000
4 - A228 Pembury Road		✓	1373	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - A21	2 - A228 Pembury Northern Bypass	3 - Tesco	4 - A228 Pembury Road
From	1 - A21	0	2	10	511
	2 - A228 Pembury Northern Bypass	0	0	123	832
	3 - Tesco	39	72	0	253
	4 - A228 Pembury Road	404	802	167	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A21	2 - A228 Pembury Northern Bypass	3 - Tesco	4 - A228 Pembury Road
From	1 - A21	0	23	0	2
	2 - A228 Pembury Northern Bypass	13	0	0	3
	3 - Tesco	0	1	0	0
	4 - A228 Pembury Road	3	3	2	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1 - A21	0.44	4.97	0.8	A
2 - A228 Pembury Northern Bypass	0.61	5.40	1.6	A
3 - Tesco	0.69	19.90	2.1	C
4 - A228 Pembury Road	0.78	8.74	3.6	A

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - A21	394	780	1576	0.250	392	0.3	3.101	A
2 - A228 Pembury Northern Bypass	719	516	1912	0.376	717	0.6	3.082	A
3 - Tesco	274	1008	844	0.325	272	0.5	6.286	A
4 - A228 Pembury Road	1034	83	1961	0.527	1029	1.1	3.956	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - A21	470	934	1466	0.321	470	0.5	3.683	A
2 - A228 Pembury Northern Bypass	859	618	1838	0.467	857	0.9	3.765	A
3 - Tesco	327	1206	733	0.446	326	0.8	8.798	A
4 - A228 Pembury Road	1234	99	1950	0.633	1232	1.7	5.141	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - A21	576	1140	1319	0.437	575	0.8	4.925	A
2 - A228 Pembury Northern Bypass	1051	755	1737	0.605	1049	1.6	5.349	A
3 - Tesco	401	1475	583	0.688	396	2.1	18.788	C
4 - A228 Pembury Road	1512	121	1935	0.781	1505	3.5	8.460	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - A21	576	1146	1315	0.438	576	0.8	4.968	A
2 - A228 Pembury Northern Bypass	1051	757	1735	0.606	1051	1.6	5.401	A
3 - Tesco	401	1479	581	0.690	400	2.1	19.902	C
4 - A228 Pembury Road	1512	122	1934	0.782	1511	3.6	8.740	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - A21	470	942	1461	0.322	471	0.5	3.719	A
2 - A228 Pembury Northern Bypass	859	621	1836	0.468	861	0.9	3.802	A
3 - Tesco	327	1211	731	0.448	333	0.8	9.176	A
4 - A228 Pembury Road	1234	101	1948	0.633	1241	1.8	5.290	A

18:15 - 18:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - A21	394	786	1572	0.250	394	0.3	3.119	A
2 - A228 Pembury Northern Bypass	719	519	1910	0.376	720	0.6	3.106	A
3 - Tesco	274	1013	841	0.326	275	0.5	6.387	A
4 - A228 Pembury Road	1034	84	1960	0.527	1036	1.2	4.019	A

Local Plan MS 2038, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout	1, 2, 3, 4	4.41	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)
D9	Local Plan MS 2038	AM	ONE HOUR	08:00	09:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A21		✓	439	100.000
2 - A228 Pembury Northern Bypass		✓	844	100.000
3 - Tesco		✓	117	100.000
4 - A228 Pembury Road		✓	1016	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - A21	2 - A228 Pembury Northern Bypass	3 - Tesco	4 - A228 Pembury Road
From	1 - A21	0	21	27	391
	2 - A228 Pembury Northern Bypass	6	0	52	786
	3 - Tesco	6	28	0	83
	4 - A228 Pembury Road	238	621	157	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A21	2 - A228 Pembury Northern Bypass	3 - Tesco	4 - A228 Pembury Road
From	1 - A21	0	26	7	14
	2 - A228 Pembury Northern Bypass	38	0	1	9
	3 - Tesco	16	13	0	0
	4 - A228 Pembury Road	5	4	6	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1 - A21	0.32	4.04	0.5	A
2 - A228 Pembury Northern Bypass	0.51	4.36	1.1	A
3 - Tesco	0.19	6.77	0.2	A
4 - A228 Pembury Road	0.56	4.33	1.3	A

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - A21	331	605	1701	0.194	329	0.3	2.990	A
2 - A228 Pembury Northern Bypass	635	431	1974	0.322	633	0.5	2.913	A
3 - Tesco	88	888	911	0.097	88	0.1	4.526	A
4 - A228 Pembury Road	765	30	1997	0.383	762	0.6	3.041	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - A21	395	724	1616	0.244	394	0.4	3.360	A
2 - A228 Pembury Northern Bypass	759	516	1912	0.397	758	0.7	3.387	A
3 - Tesco	105	1062	814	0.129	105	0.2	5.261	A
4 - A228 Pembury Road	913	36	1993	0.458	912	0.9	3.479	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - A21	483	886	1501	0.322	483	0.5	4.031	A
2 - A228 Pembury Northern Bypass	929	632	1827	0.509	928	1.1	4.340	A
3 - Tesco	129	1300	681	0.189	128	0.2	6.750	A
4 - A228 Pembury Road	1119	44	1987	0.563	1117	1.3	4.314	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - A21	483	887	1500	0.322	483	0.5	4.040	A
2 - A228 Pembury Northern Bypass	929	633	1826	0.509	929	1.1	4.358	A
3 - Tesco	129	1302	679	0.190	129	0.2	6.772	A
4 - A228 Pembury Road	1119	44	1987	0.563	1119	1.3	4.331	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - A21	395	726	1615	0.244	395	0.4	3.371	A
2 - A228 Pembury Northern Bypass	759	518	1911	0.397	760	0.7	3.405	A
3 - Tesco	105	1066	812	0.130	106	0.2	5.282	A
4 - A228 Pembury Road	913	36	1993	0.458	915	0.9	3.497	A

09:15 - 09:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - A21	331	608	1699	0.195	331	0.3	3.001	A
2 - A228 Pembury Northern Bypass	635	433	1973	0.322	636	0.5	2.929	A
3 - Tesco	88	892	909	0.097	88	0.1	4.544	A
4 - A228 Pembury Road	765	30	1997	0.383	766	0.7	3.061	A

Local Plan MS 2038, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout	1, 2, 3, 4	6.98	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)
D10	Local Plan MS 2038	PM	ONE HOUR	17:00	18:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A21		✓	492	100.000
2 - A228 Pembury Northern Bypass		✓	917	100.000
3 - Tesco		✓	331	100.000
4 - A228 Pembury Road		✓	1326	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - A21	2 - A228 Pembury Northern Bypass	3 - Tesco	4 - A228 Pembury Road
From	1 - A21	0	20	10	462
	2 - A228 Pembury Northern Bypass	0	0	114	803
	3 - Tesco	27	74	0	230
	4 - A228 Pembury Road	376	794	156	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A21	2 - A228 Pembury Northern Bypass	3 - Tesco	4 - A228 Pembury Road
From	1 - A21	0	12	0	3
	2 - A228 Pembury Northern Bypass	13	0	0	3
	3 - Tesco	0	1	0	0
	4 - A228 Pembury Road	3	3	3	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1 - A21	0.41	4.73	0.7	A
2 - A228 Pembury Northern Bypass	0.57	4.77	1.3	A
3 - Tesco	0.58	13.62	1.4	B
4 - A228 Pembury Road	0.75	7.68	3.1	A

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - A21	370	768	1585	0.234	369	0.3	3.055	A
2 - A228 Pembury Northern Bypass	690	471	1945	0.355	688	0.6	2.934	A
3 - Tesco	249	949	877	0.284	248	0.4	5.721	A
4 - A228 Pembury Road	998	76	1966	0.508	994	1.1	3.800	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - A21	442	919	1477	0.299	442	0.4	3.589	A
2 - A228 Pembury Northern Bypass	824	564	1877	0.439	823	0.8	3.502	A
3 - Tesco	298	1136	772	0.385	297	0.6	7.569	A
4 - A228 Pembury Road	1192	91	1956	0.609	1190	1.6	4.827	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - A21	542	1123	1332	0.407	541	0.7	4.695	A
2 - A228 Pembury Northern Bypass	1010	690	1785	0.566	1008	1.3	4.740	A
3 - Tesco	364	1390	630	0.578	362	1.3	13.282	B
4 - A228 Pembury Road	1460	110	1942	0.752	1454	3.0	7.509	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - A21	542	1127	1328	0.408	542	0.7	4.725	A
2 - A228 Pembury Northern Bypass	1010	691	1784	0.566	1010	1.3	4.772	A
3 - Tesco	364	1393	629	0.580	364	1.4	13.624	B
4 - A228 Pembury Road	1460	111	1942	0.752	1460	3.1	7.683	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - A21	442	925	1472	0.300	443	0.4	3.615	A
2 - A228 Pembury Northern Bypass	824	566	1875	0.440	826	0.8	3.530	A
3 - Tesco	298	1140	770	0.386	300	0.6	7.727	A
4 - A228 Pembury Road	1192	92	1955	0.610	1198	1.6	4.934	A

18:15 - 18:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - A21	370	773	1581	0.234	371	0.3	3.074	A
2 - A228 Pembury Northern Bypass	690	474	1943	0.355	691	0.6	2.952	A
3 - Tesco	249	954	874	0.285	250	0.4	5.790	A
4 - A228 Pembury Road	998	76	1965	0.508	1001	1.1	3.852	A

Junction 23 – A264 / Halls Hole Lane / Blackhurst Lane

Linsig

- Local Plan MS – existing layout
- Local Plan MS – No Right Turn to Halls Hole Road only
- Local Plan MS – No Right Turns
- Local Plan MS – Roundabout

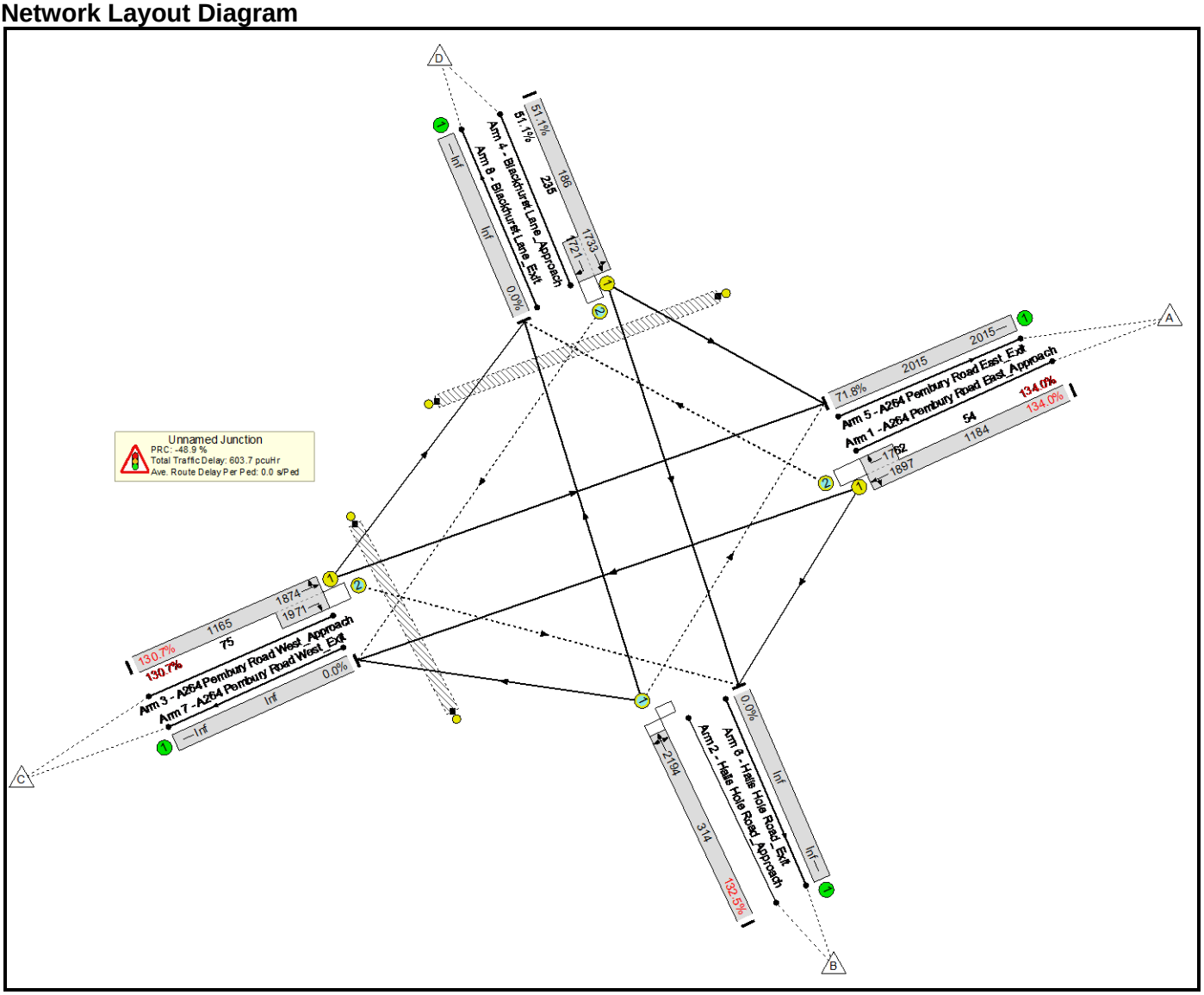
Basic Results Summary

User and Project Details

Project:	
Title:	
Location:	
Additional detail:	
File name:	23 - A264 Pembury Road_Halls Hole Road.lsg3x
Author:	
Company:	
Address:	

Scenario 1: 'Ref Case 2038 AM' (FG1: 'Ref Case AM', Plan 3: 'With Peds_double cycle')

Network Layout Diagram



Basic Results Summary

Network Results

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	-	-	-		-	-	-	-	-	-	**134.0%**	**500**	**0**	**41**	**603.7**	-	-
Unnamed Junction	-	-	-		-	-	-	-	-	-	**134.0%**	**500**	**0**	**41**	**603.7**	-	-
1/1+1/2	A264 Pembury Road East_Approach Left Ahead Right	U+O	A		2	155	-	1659	1897:1762	1184+54	134.0 : 134.0%	54	0	1	275.4	597.6	321.4
2/1	Halls Hole Road_Approach Right Left Ahead	O	B		2	43	-	416	2194	314	132.5%	258	0	33	75.9	656.5	88.8
3/1+3/2	A264 Pembury Road West_Approach Ahead Right Left	U+O	C		2	155	-	1621	1874:1971	1165+75	130.7 : 130.7%	75	0	0	248.1	551.1	293.8
4/1+4/2	Blackhurst Lane_Approach Left Ahead Right	U+O	D		2	43	-	215	1733:1721	186+235	51.1 : 51.1%	113	0	7	3.1	51.6	4.1
5/1	A264 Pembury Road East_Exit	U	-		-	-	-	1871	2015	2015	71.8%	-	-	-	1.3	3.2	1.3
Ped Link: P1	Unnamed Ped Link	-	F		1	14	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P2	Unnamed Ped Link	-	E		1	7	-	0	-	0	0.0%	-	-	-	-	-	-

C1

PRC for Signalled Lanes (%): -48.9
PRC Over All Lanes (%): -48.9

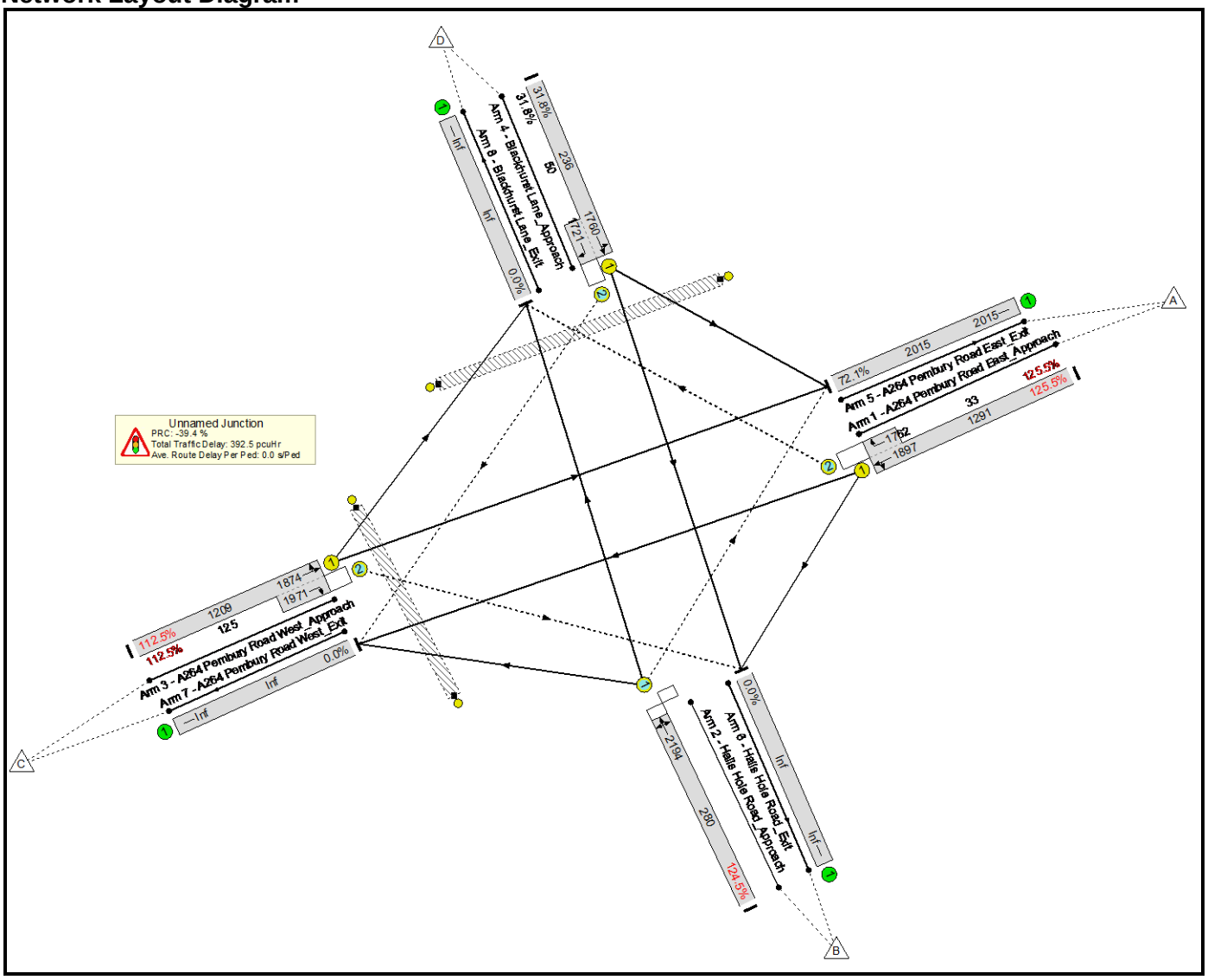
Total Delay for Signalled Lanes (pcuHr): 602.47
Total Delay Over All Lanes(pcuHr): 603.74

Cycle Time (s): 240

Basic Results Summary

Scenario 2: 'Ref Case 2038 PM' (FG2: 'Ref Case PM', Plan 3: 'With Peds_double cycle')

Network Layout Diagram



Basic Results Summary

Network Results

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	-	-	-		-	-	-	-	-	-	**125.5%**	**356**	**0**	**26**	**392.5**	-	-
Unnamed Junction	-	-	-		-	-	-	-	-	-	**125.5%**	**356**	**0**	**26**	**392.5**	-	-
1/1+1/2	A264 Pembury Road East_Approach Left Ahead Right	U+O	A		2	166	-	1662	1897:1762	1291+33	125.5 : 125.5%	33	0	0	222.6	482.2	267.6
2/1	Halls Hole Road_Approach Right Left Ahead	O	B		2	32	-	348	2194	280	124.5%	182	0	25	52.1	539.1	59.7
3/1+3/2	A264 Pembury Road West_Approach Ahead Right Left	U+O	C		2	166	-	1501	1874:1971	1209+125	112.5 : 112.5%	125	0	0	115.1	276.1	156.3
4/1+4/2	Blackhurst Lane_Approach Left Ahead Right	U+O	D		2	32	-	91	1760:1721	236+50	31.8 : 31.8%	16	0	0	1.4	55.6	2.7
5/1	A264 Pembury Road East_Exit	U	-		-	-	-	1653	2015	2015	72.1%	-	-	-	1.3	3.2	1.3
Ped Link: P1	Unnamed Ped Link	-	F		1	14	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P2	Unnamed Ped Link	-	E		1	7	-	0	-	0	0.0%	-	-	-	-	-	-

C1

PRC for Signalled Lanes (%): -39.4
PRC Over All Lanes (%): -39.4

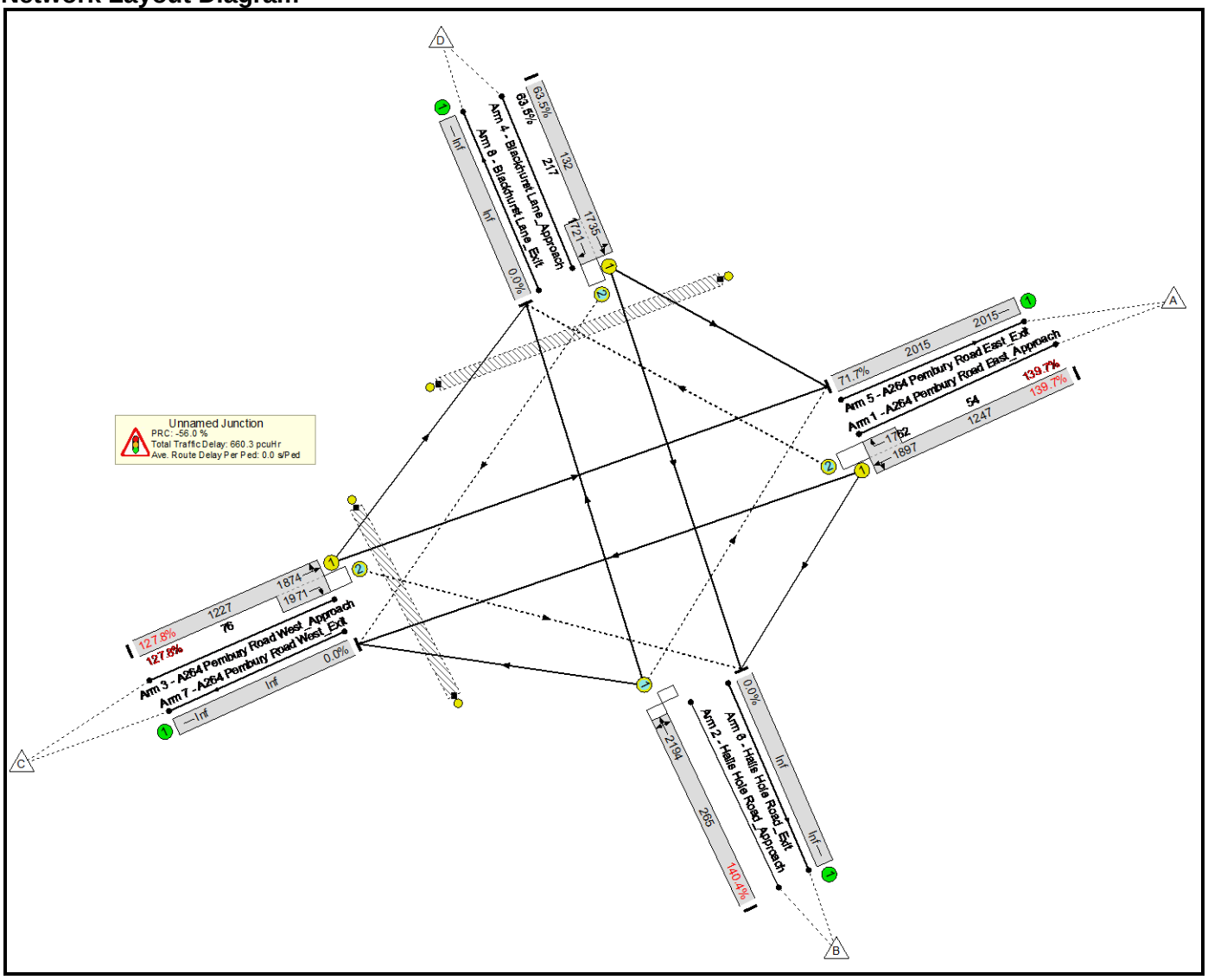
Total Delay for Signalled Lanes (pcuHr): 391.26
Total Delay Over All Lanes(pcuHr): 392.55

Cycle Time (s): 240

Basic Results Summary

Scenario 3: 'Local Plan 2038 AM' (FG3: 'Local Plan AM', Plan 3: 'With Peds_double cycle')

Network Layout Diagram



Basic Results Summary

Network Results

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	-	-	-		-	-	-	-	-	-	**140.4%**	**461**	**0**	**51**	**660.3**	-	-
Unnamed Junction	-	-	-		-	-	-	-	-	-	**140.4%**	**461**	**0**	**51**	**660.3**	-	-
1/1+1/2	A264 Pembury Road East_Approach Left Ahead Right	U+O	A		2	163	-	1818	1897:1762	1247+54	139.7 : 139.7%	54	0	1	340.0	673.3	384.9
2/1	Halls Hole Road_Approach Right Left Ahead	O	B		2	35	-	372	2194	265	140.4%	210	0	34	77.9	753.5	88.0
3/1+3/2	A264 Pembury Road West_Approach Ahead Right Left	U+O	C		2	163	-	1665	1874:1971	1227+76	127.8 : 127.8%	76	0	0	237.3	513.1	279.2
4/1+4/2	Blackhurst Lane_Approach Left Ahead Right	U+O	D		2	35	-	222	1735:1721	132+217	63.5 : 63.5%	122	0	16	3.8	62.0	6.3
5/1	A264 Pembury Road East_Exit	U	-		-	-	-	1856	2015	2015	71.7%	-	-	-	1.3	3.1	1.3
Ped Link: P1	Unnamed Ped Link	-	F		1	14	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P2	Unnamed Ped Link	-	E		1	7	-	0	-	0	0.0%	-	-	-	-	-	-

C1

PRC for Signalled Lanes (%): -56.0
PRC Over All Lanes (%): -56.0

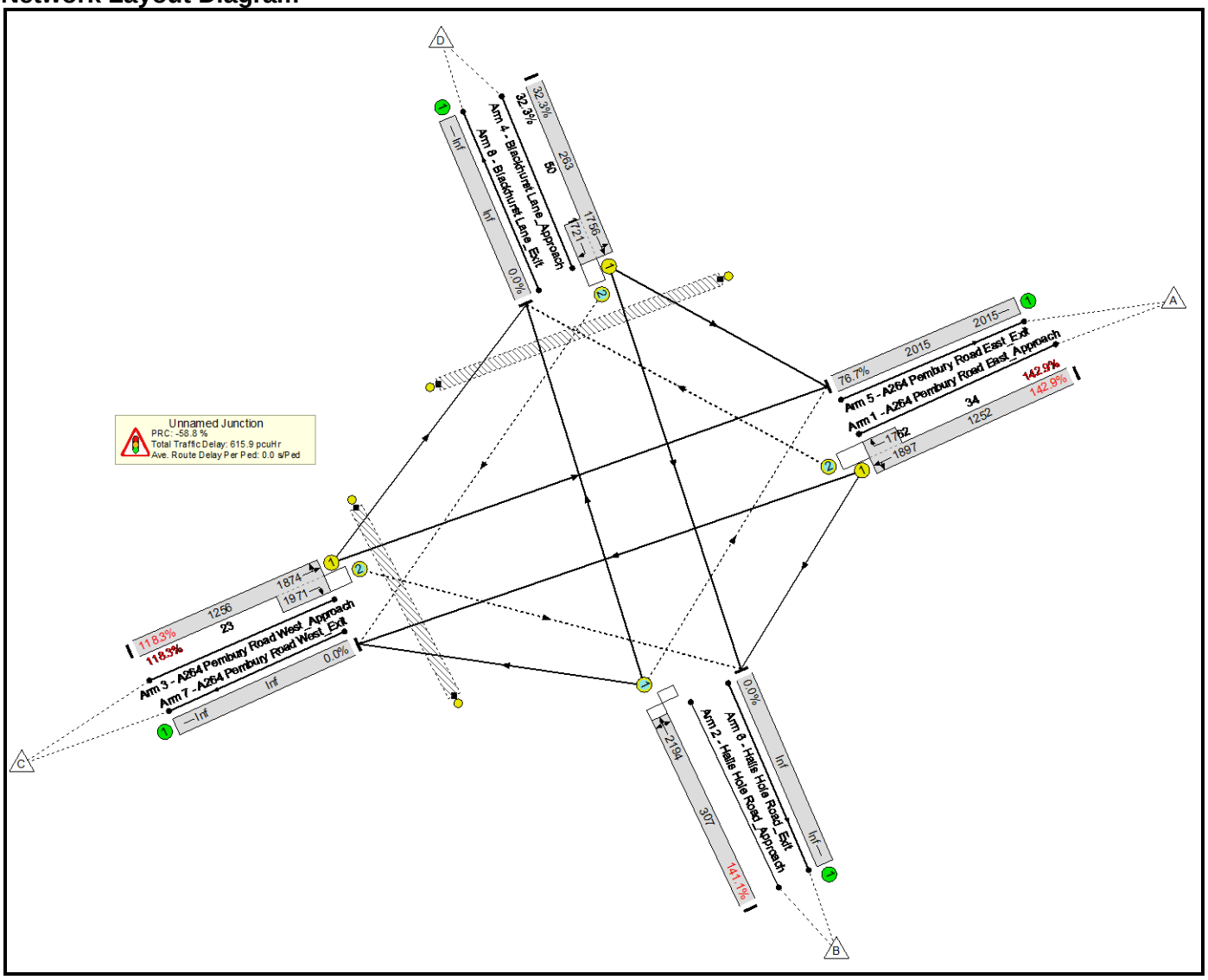
Total Delay for Signalled Lanes (pcuHr): 659.01
Total Delay Over All Lanes(pcuHr): 660.27

Cycle Time (s): 240

Basic Results Summary

Scenario 4: 'Local Plan 2038 PM' (FG4: 'Local Plan PM', Plan 3: 'With Peds_double cycle')

Network Layout Diagram



Basic Results Summary

Network Results

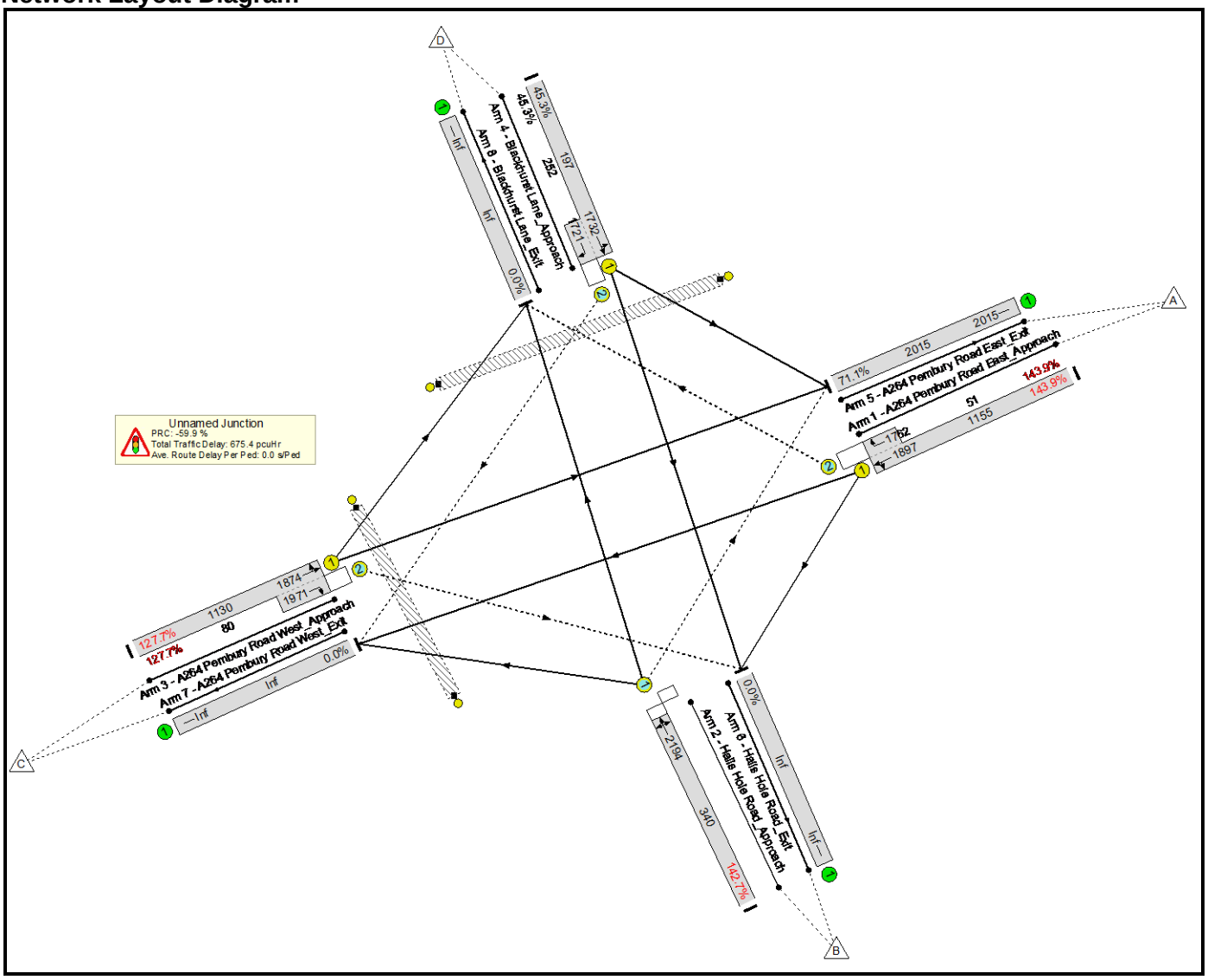
Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	-	-	-		-	-	-	-	-	-	**142.9%**	**283**	**0**	**32**	**615.9**	-	-
Unnamed Junction	-	-	-		-	-	-	-	-	-	**142.9%**	**283**	**0**	**32**	**615.9**	-	-
1/1+1/2	A264 Pembury Road East_Approach Left Ahead Right	U+O	A		2	161	-	1837	1897:1762	1252+34	142.9 : 142.9%	33	0	0	361.0	707.5	423.6
2/1	Halls Hole Road_Approach Right Left Ahead	O	B		2	37	-	434	2194	307	141.1%	211	0	32	93.0	771.4	105.1
3/1+3/2	A264 Pembury Road West_Approach Ahead Right Left	U+O	C		2	161	-	1512	1874:1971	1256+23	118.3 : 118.3%	23	0	0	158.4	377.2	218.9
4/1+4/2	Blackhurst Lane_Approach Left Ahead Right	U+O	D		2	37	-	101	1756:1721	263+50	32.3 : 32.3%	16	0	0	1.9	66.4	4.1
5/1	A264 Pembury Road East_Exit	U	-		-	-	-	1872	2015	2015	76.7%	-	-	-	1.6	3.8	1.6
Ped Link: P1	Unnamed Ped Link	-	F		1	14	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P2	Unnamed Ped Link	-	E		1	7	-	0	-	0	0.0%	-	-	-	-	-	-

C1 PRC for Signalled Lanes (%): -58.8 Total Delay for Signalled Lanes (pcuHr): 614.27 Cycle Time (s): 240
PRC Over All Lanes (%): -58.8 Total Delay Over All Lanes(pcuHr): 615.90

Basic Results Summary

Scenario 5: 'Local Plan 2038 MS AM' (FG5: 'Local Plan MS AM', Plan 3: 'With Peds_double cycle')

Network Layout Diagram



Basic Results Summary

Network Results

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	-	-	-		-	-	-	-	-	-	**143.9%**	**515**	**0**	**47**	**675.4**	-	-
Unnamed Junction	-	-	-		-	-	-	-	-	-	**143.9%**	**515**	**0**	**47**	**675.4**	-	-
1/1+1/2	A264 Pembury Road East_Approach Left Ahead Right	U+O	A		2	151	-	1736	1897:1762	1155+51	143.9 : 143.9%	51	0	1	346.1	717.7	384.6
2/1	Halls Hole Road_Approach Right Left Ahead	O	B		2	47	-	485	2194	340	142.7%	283	0	34	105.2	780.6	120.2
3/1+3/2	A264 Pembury Road West_Approach Ahead Right Left	U+O	C		2	151	-	1545	1874:1971	1130+80	127.7 : 127.7%	80	0	0	220.0	512.7	260.0
4/1+4/2	Blackhurst Lane_Approach Left Ahead Right	U+O	D		2	47	-	203	1732:1721	197+252	45.3 : 45.3%	101	0	13	2.8	50.0	4.3
5/1	A264 Pembury Road East_Exit	U	-		-	-	-	1856	2015	2015	71.1%	-	-	-	1.2	3.1	1.2
Ped Link: P1	Unnamed Ped Link	-	F		1	14	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P2	Unnamed Ped Link	-	E		1	7	-	0	-	0	0.0%	-	-	-	-	-	-

C1

PRC for Signalled Lanes (%): -59.9
PRC Over All Lanes (%): -59.9

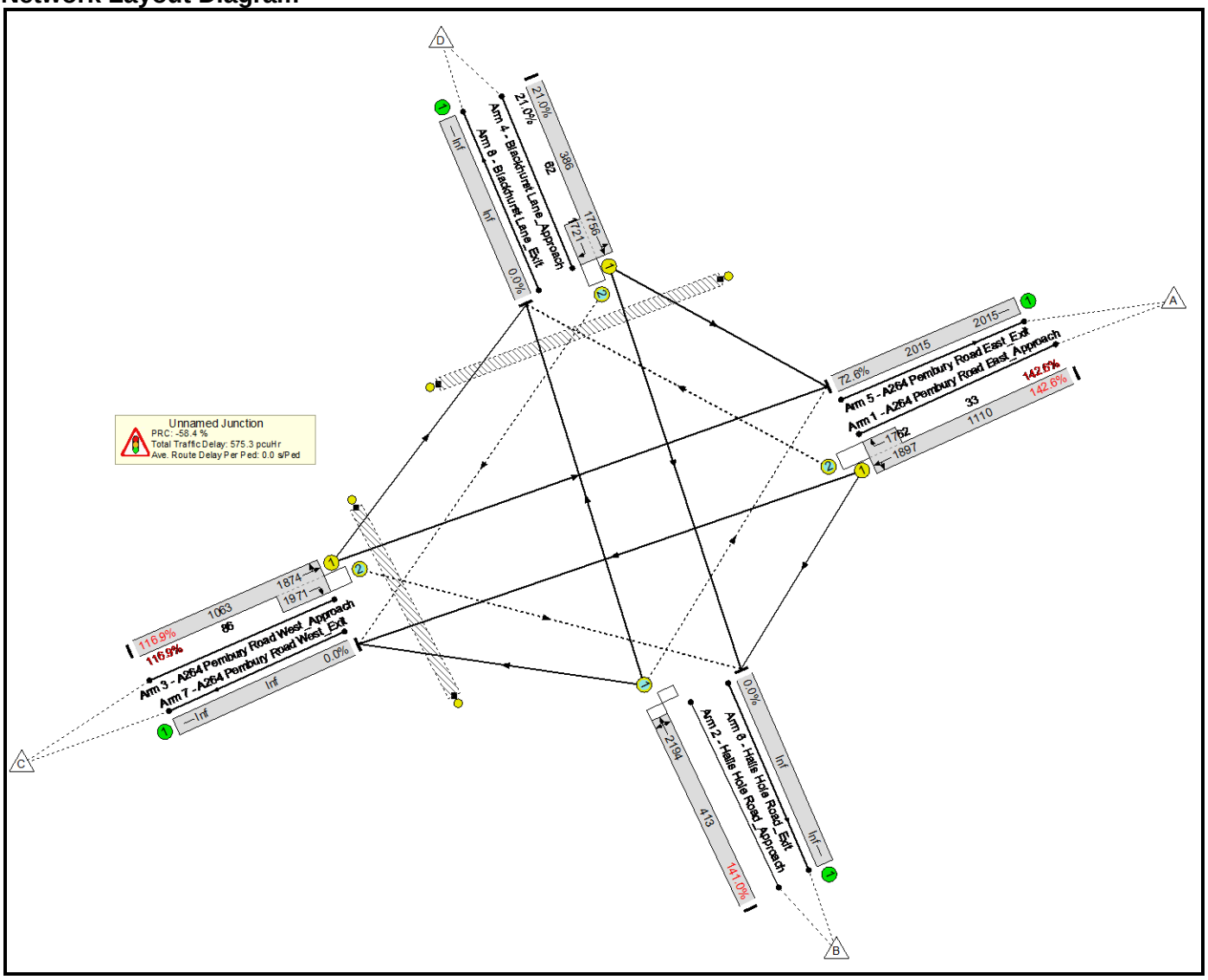
Total Delay for Signalled Lanes (pcuHr): 674.13
Total Delay Over All Lanes(pcuHr): 675.36

Cycle Time (s): 240

Basic Results Summary

Scenario 6: 'Local Plan 2038 MS PM' (FG6: 'Local Plan MS PM', Plan 3: 'With Peds_double cycle')

Network Layout Diagram



Basic Results Summary

Network Results

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	-	-	-		-	-	-	-	-	-	**142.6%**	**452**	**0**	**31**	**575.3**	-	-
Unnamed Junction	-	-	-		-	-	-	-	-	-	**142.6%**	**452**	**0**	**31**	**575.3**	-	-
1/1+1/2	A264 Pembury Road East_Approach Left Ahead Right	U+O	A		2	143	-	1630	1897:1762	1110+33	142.6 : 142.6%	33	0	0	319.7	706.1	359.6
2/1	Halls Hole Road_Approach Right Left Ahead	O	B		2	55	-	582	2194	413	141.0%	320	0	30	120.2	743.3	134.8
3/1+3/2	A264 Pembury Road West_Approach Ahead Right Left	U+O	C		2	143	-	1344	1874:1971	1063+86	116.9 : 116.9%	86	0	0	133.0	356.3	167.3
4/1+4/2	Blackhurst Lane_Approach Left Ahead Right	U+O	D		2	55	-	94	1756:1721	386+62	21.0 : 21.0%	13	0	0	1.1	41.8	2.5
5/1	A264 Pembury Road East_Exit	U	-		-	-	-	1784	2015	2015	72.6%	-	-	-	1.3	3.2	1.3
Ped Link: P1	Unnamed Ped Link	-	F		1	14	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P2	Unnamed Ped Link	-	E		1	7	-	0	-	0	0.0%	-	-	-	-	-	-

C1

PRC for Signalled Lanes (%): -58.4
PRC Over All Lanes (%): -58.4

Total Delay for Signalled Lanes (pcuHr): 573.95
Total Delay Over All Lanes(pcuHr): 575.27

Cycle Time (s): 240

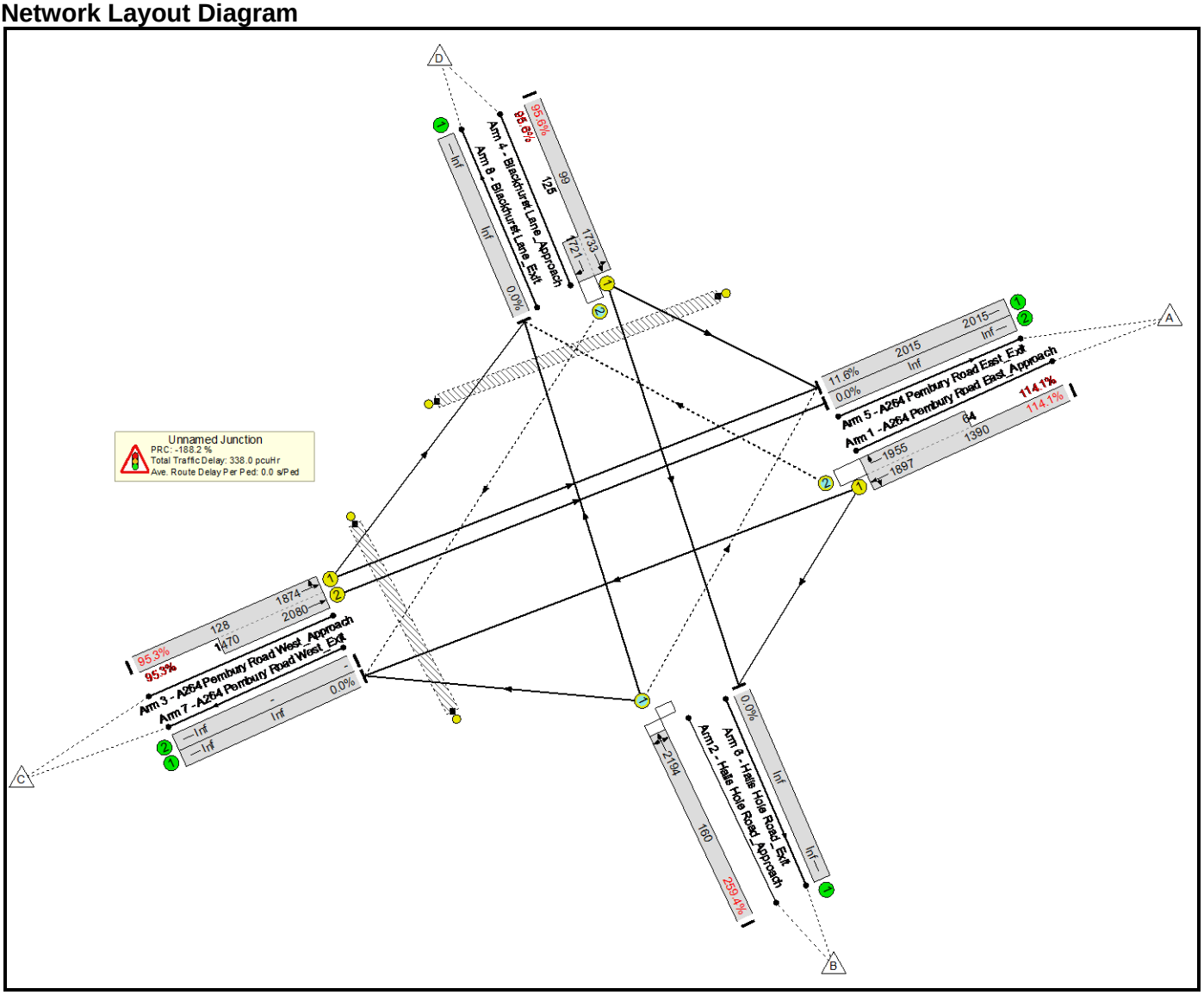
Basic Results Summary

User and Project Details

Project:	
Title:	
Location:	
Additional detail:	
File name:	23 - A264 Pembury Road_Halls Hole Road_Mit 1 HHRnorightturn.lsg3x
Author:	
Company:	
Address:	

Scenario 1: 'Ref Case 2038 AM' (FG1: 'Ref Case AM', Plan 3: 'With Peds_double cycle')

Network Layout Diagram



Basic Results Summary

Network Results

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	-	-	-		-	-	-	-	-	-	**259.4%**	**252**	**0**	**81**	**338.0**	-	-
Unnamed Junction	-	-	-		-	-	-	-	-	-	**259.4%**	**252**	**0**	**81**	**338.0**	-	-
1/1+1/2	A264 Pembury Road East_Approach Left Ahead Right	U+O	A		2	180	-	1659	1897:1955	1390+64	114.1 : 114.1%	0	0	64	142.3	308.9	210.1
2/1	Halls Hole Road_Approach Right Left Ahead	O	B		1	23	-	416	2194	160	259.4%	132	0	17	169.9	1470.4	179.8
3/1+3/2	A264 Pembury Road West_Approach Ahead Left	U	C		2	180	-	1523	1874:2080	128+1470	95.3 : 95.3%	-	-	-	14.0	33.1	60.8
4/1+4/2	Blackhurst Lane_Approach Left Ahead Right	U+O	D		1	23	-	215	1733:1721	99+125	95.6 : 95.6%	120	0	0	11.6	194.5	16.6
5/1	A264 Pembury Road East_Exit	U	-		-	-	-	470	2015	2015	11.6%	-	-	-	0.1	1.0	0.1
Ped Link: P1	Unnamed Ped Link	-	F		1	7	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P2	Unnamed Ped Link	-	E		1	14	-	0	-	0	0.0%	-	-	-	-	-	-

C1

PRC for Signalled Lanes (%): -188.2
PRC Over All Lanes (%): -188.2

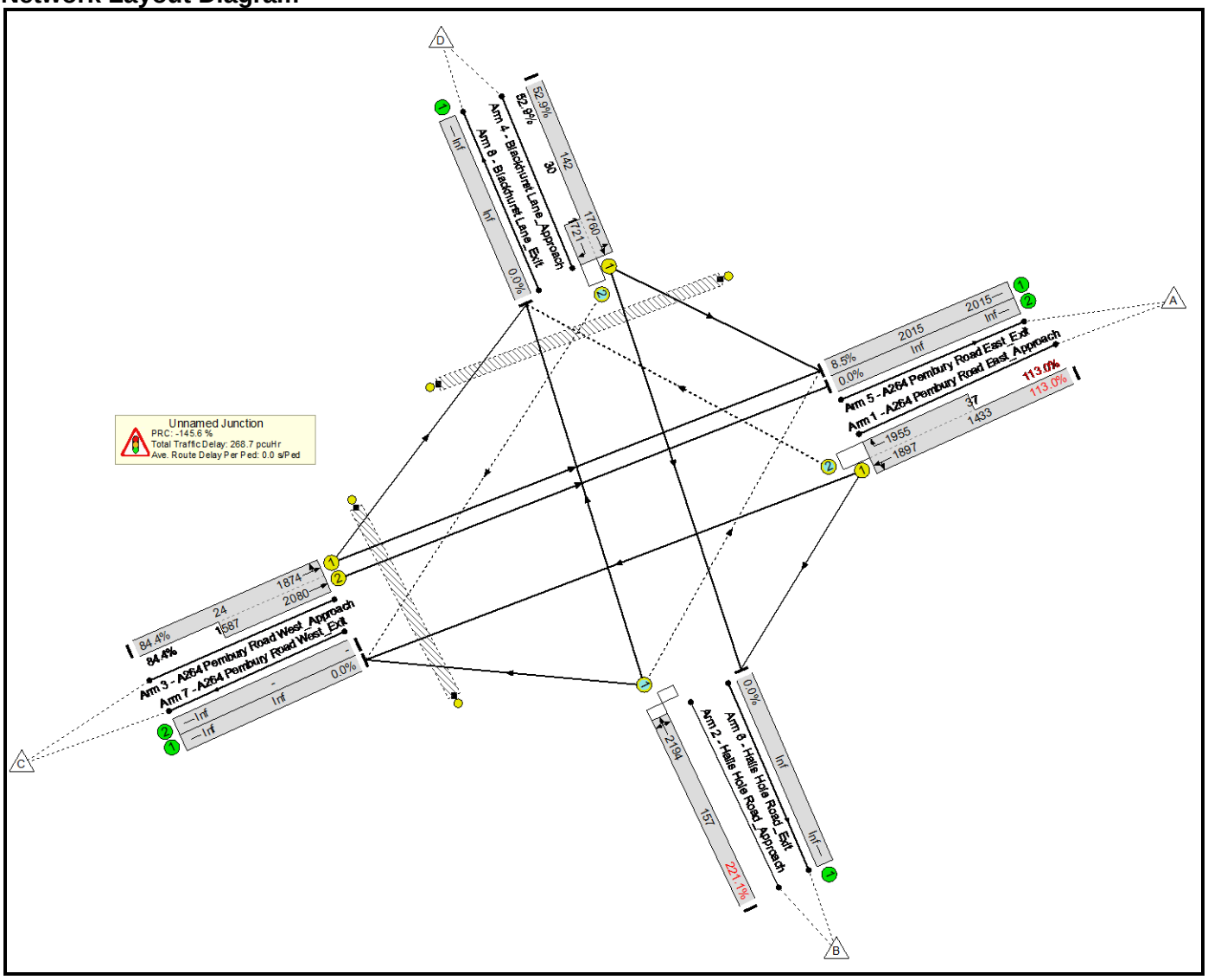
Total Delay for Signalled Lanes (pcuHr): 337.89
Total Delay Over All Lanes(pcuHr): 337.96

Cycle Time (s): 240

Basic Results Summary

Scenario 2: 'Ref Case 2038 PM' (FG2: 'Ref Case PM', Plan 3: 'With Peds_double cycle')

Network Layout Diagram



Basic Results Summary

Network Results

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**221.1%**	**120**	**0**	**50**	**268.7**	**-**	**-**
Unnamed Junction	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**221.1%**	**120**	**0**	**50**	**268.7**	**-**	**-**
1/1+1/2	A264 Pembury Road East_Approach Left Ahead Right	U+O	A		2	183	-	1662	1897:1955	1433+37	113.0 : 113.0%	0	0	37	132.4	286.8	196.2
2/1	Halls Hole Road_Approach Right Left Ahead	O	B		1	20	-	348	2194	157	221.1%	104	0	13	127.1	1315.1	134.3
3/1+3/2	A264 Pembury Road West_Approach Ahead Left	U	C		2	183	-	1360	1874:2080	24+1587	84.4 : 84.4%	-	-	-	6.0	15.9	33.5
4/1+4/2	Blackhurst Lane_Approach Left Ahead Right	U+O	D		1	20	-	91	1760:1721	142+30	52.9 : 52.9%	16	0	0	3.2	125.9	5.5
5/1	A264 Pembury Road East_Exit	U	-		-	-	-	313	2015	2015	8.5%	-	-	-	0.0	1.0	0.0
Ped Link: P1	Unnamed Ped Link	-	F		1	7	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P2	Unnamed Ped Link	-	E		1	14	-	0	-	0	0.0%	-	-	-	-	-	-

C1

PRC for Signalled Lanes (%): -145.6
PRC Over All Lanes (%): -145.6

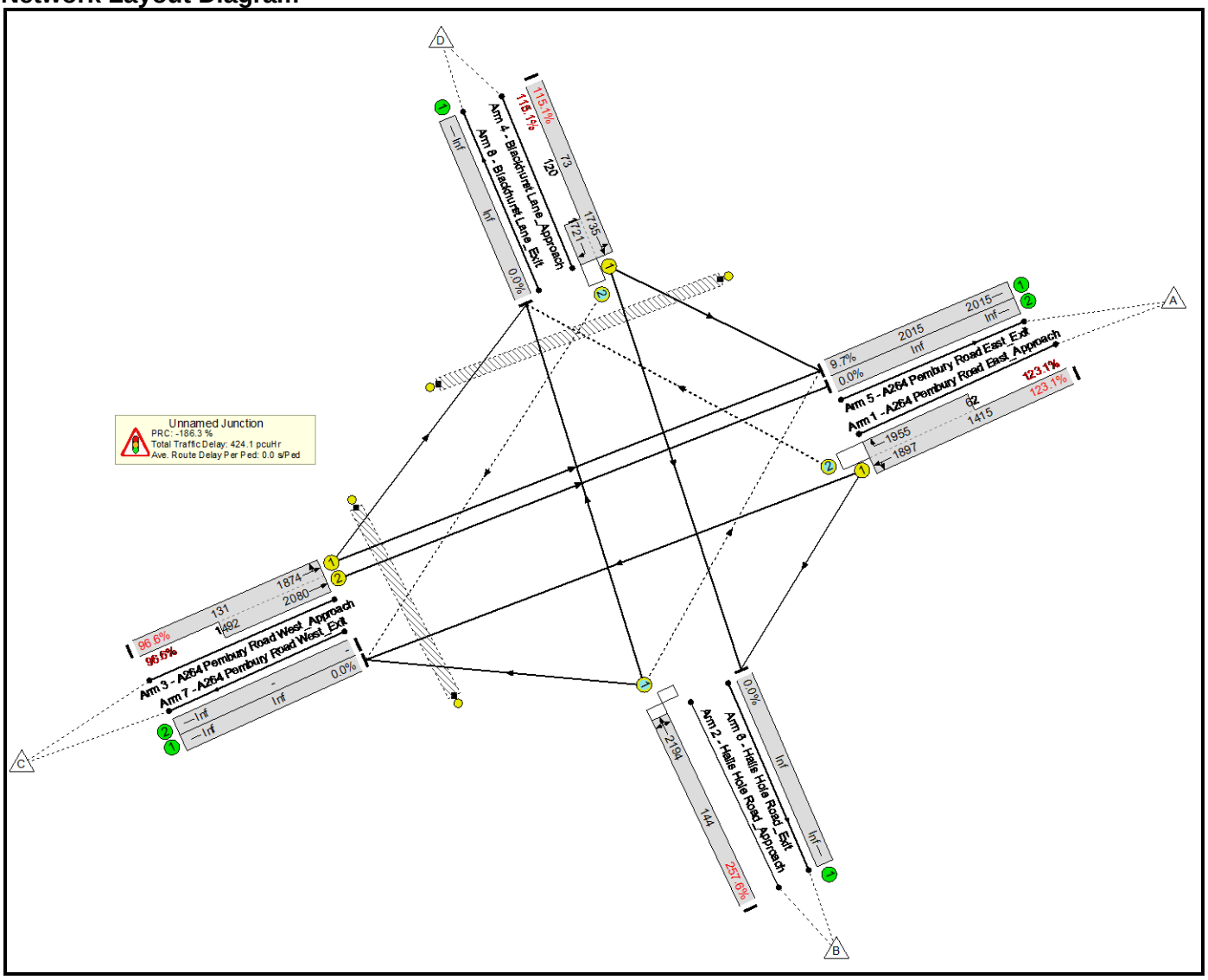
Total Delay for Signalled Lanes (pcuHr): 268.70
Total Delay Over All Lanes(pcuHr): 268.75

Cycle Time (s): 240

Basic Results Summary

Scenario 3: 'Local Plan 2038 AM' (FG3: 'Local Plan AM', Plan 3: 'With Peds_double cycle')

Network Layout Diagram



Basic Results Summary

Network Results

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	-	-	-		-	-	-	-	-	-	**257.6%**	**230**	**0**	**84**	**424.1**	-	-
Unnamed Junction	-	-	-		-	-	-	-	-	-	**257.6%**	**230**	**0**	**84**	**424.1**	-	-
1/1+1/2	A264 Pembury Road East_Approach Left Ahead Right	U+O	A		2	183	-	1818	1897:1955	1415+62	123.1 : 123.1%	0	0	62	229.0	453.5	298.4
2/1	Halls Hole Road_Approach Right Left Ahead	O	B		1	20	-	372	2194	144	257.6%	115	0	17	151.7	1468.1	160.1
3/1+3/2	A264 Pembury Road West_Approach Ahead Left	U	C		2	183	-	1568	1874:2080	131+1492	96.6 : 96.6%	-	-	-	15.8	36.2	62.2
4/1+4/2	Blackhurst Lane_Approach Left Ahead Right	U+O	D		1	20	-	222	1735:1721	73+120	115.1 : 115.1%	115	0	5	27.5	446.2	32.4
5/1	A264 Pembury Road East_Exit	U	-		-	-	-	415	2015	2015	9.7%	-	-	-	0.1	1.0	0.1
Ped Link: P1	Unnamed Ped Link	-	F		1	7	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P2	Unnamed Ped Link	-	E		1	14	-	0	-	0	0.0%	-	-	-	-	-	-

C1

PRC for Signalled Lanes (%): -186.3
PRC Over All Lanes (%): -186.3

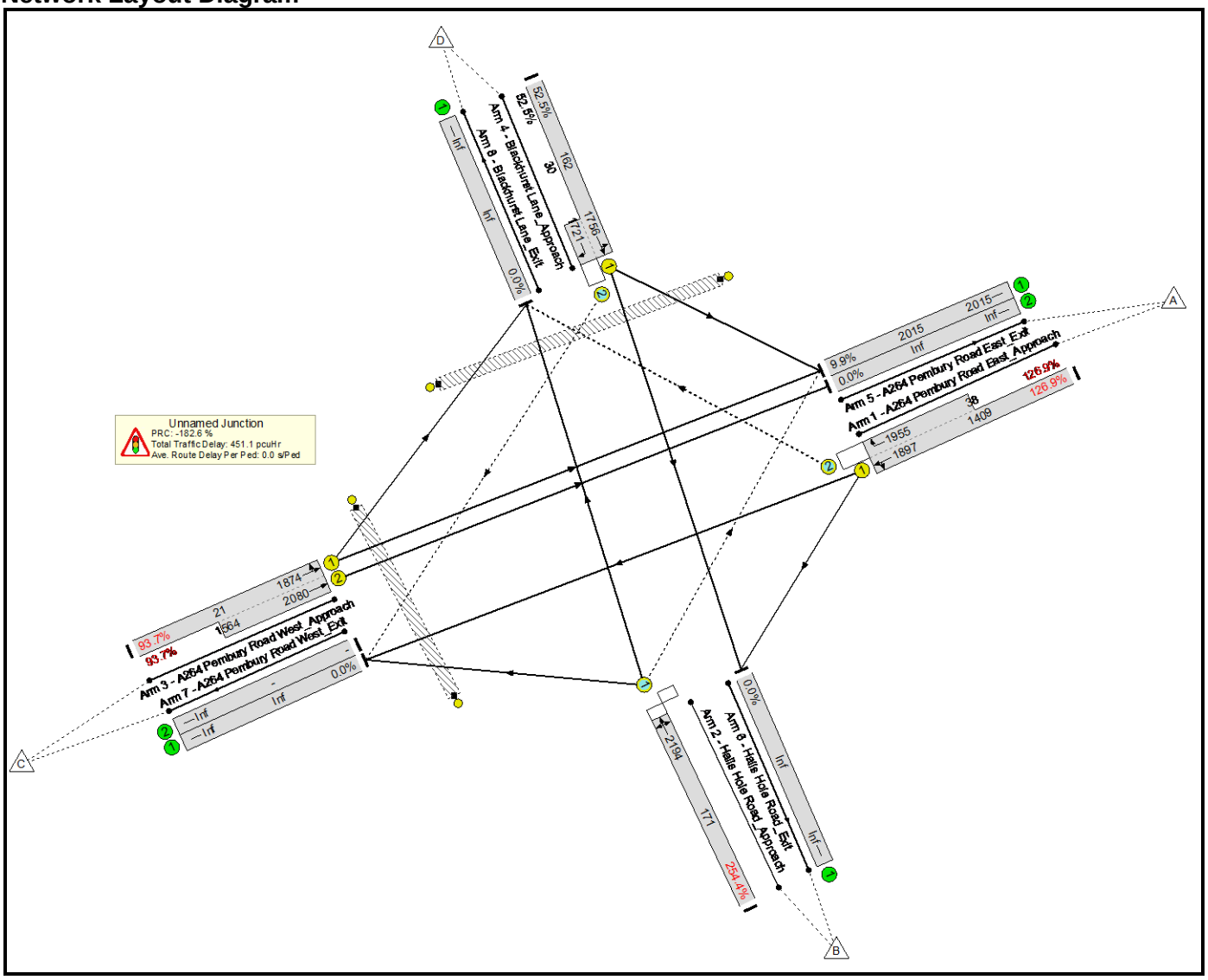
Total Delay for Signalled Lanes (pcuHr): 424.00
Total Delay Over All Lanes(pcuHr): 424.06

Cycle Time (s): 240

Basic Results Summary

Scenario 4: 'Local Plan 2038 PM' (FG4: 'Local Plan PM', Plan 3: 'With Peds_double cycle')

Network Layout Diagram



Basic Results Summary

Network Results

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**254.4%**	**137**	**0**	**52**	**451.1**	**-**	**-**
Unnamed Junction	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**254.4%**	**137**	**0**	**52**	**451.1**	**-**	**-**
1/1+1/2	A264 Pembury Road East_Approach Left Ahead Right	U+O	A		2	180	-	1837	1897:1955	1409+38	126.9 : 126.9%	0	0	38	256.8	503.2	319.4
2/1	Halls Hole Road_Approach Right Left Ahead	O	B		1	23	-	434	2194	171	254.4%	121	0	14	178.1	1477.7	187.6
3/1+3/2	A264 Pembury Road West_Approach Ahead Left	U	C		2	180	-	1485	1874:2080	21+1564	93.7 : 93.7%	-	-	-	12.7	30.8	54.2
4/1+4/2	Blackhurst Lane_Approach Left Ahead Right	U+O	D		1	23	-	101	1756:1721	162+30	52.5 : 52.5%	16	0	0	3.4	121.3	6.2
5/1	A264 Pembury Road East_Exit	U	-		-	-	-	407	2015	2015	9.9%	-	-	-	0.1	1.0	0.1
Ped Link: P1	Unnamed Ped Link	-	F		1	7	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P2	Unnamed Ped Link	-	E		1	14	-	0	-	0	0.0%	-	-	-	-	-	-

C1

PRC for Signalled Lanes (%): -182.6
PRC Over All Lanes (%): -182.6

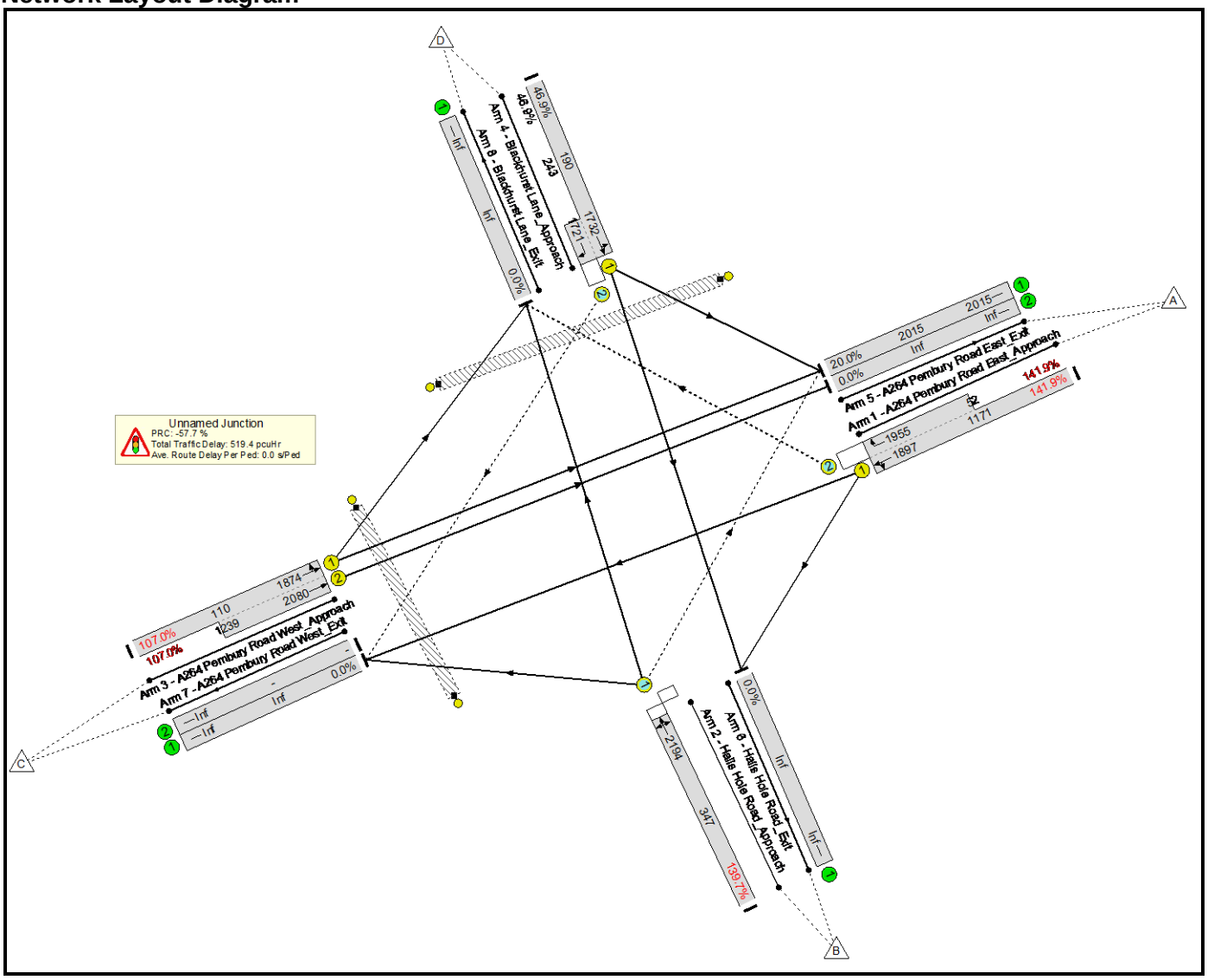
Total Delay for Signalled Lanes (pcuHr): 451.03
Total Delay Over All Lanes(pcuHr): 451.08

Cycle Time (s): 240

Basic Results Summary

Scenario 5: 'Local Plan 2038 MS AM' (FG5: 'Local Plan MS AM', Plan 3: 'With Peds_double cycle')

Network Layout Diagram



Basic Results Summary

Network Results

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	-	-	-		-	-	-	-	-	-	**141.9%**	**421**	**0**	**69**	**519.4**	-	-
Unnamed Junction	-	-	-		-	-	-	-	-	-	**141.9%**	**421**	**0**	**69**	**519.4**	-	-
1/1+1/2	A264 Pembury Road East_Approach Left Ahead Right	U+O	A		2	151	-	1736	1897:1955	1171+52	141.9 : 141.9%	0	0	52	339.2	703.5	385.1
2/1	Halls Hole Road_Approach Right Left Ahead	O	B		1	52	-	485	2194	347	139.7%	307	0	17	96.2	714.0	112.1
3/1+3/2	A264 Pembury Road West_Approach Ahead Left	U	C		2	151	-	1443	1874:2080	110+1239	107.0 : 107.0%	-	-	-	78.9	196.9	126.7
4/1+4/2	Blackhurst Lane_Approach Left Ahead Right	U+O	D		1	52	-	203	1732:1721	190+243	46.9 : 46.9%	114	0	0	4.9	86.7	9.0
5/1	A264 Pembury Road East_Exit	U	-		-	-	-	531	2015	2015	20.0%	-	-	-	0.1	1.1	0.1
Ped Link: P1	Unnamed Ped Link	-	F		1	7	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P2	Unnamed Ped Link	-	E		1	14	-	0	-	0	0.0%	-	-	-	-	-	-

C1

PRC for Signalled Lanes (%): -57.7
PRC Over All Lanes (%): -57.7

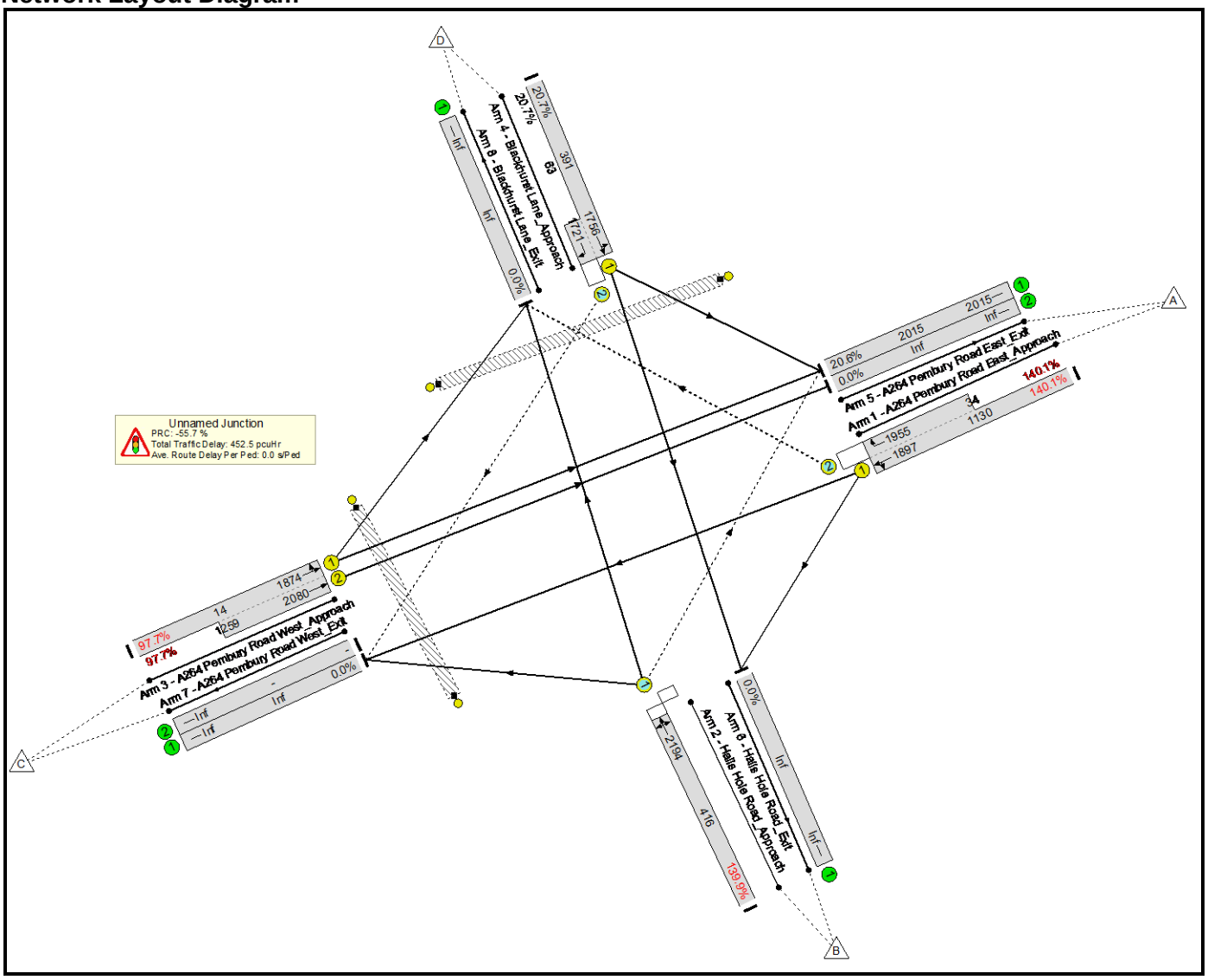
Total Delay for Signalled Lanes (pcuHr): 519.26
Total Delay Over All Lanes(pcuHr): 519.38

Cycle Time (s): 240

Basic Results Summary

Scenario 6: 'Local Plan 2038 MS PM' (FG6: 'Local Plan MS PM', Plan 3: 'With Peds_double cycle')

Network Layout Diagram



Basic Results Summary

Network Results

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	-	-	-		-	-	-	-	-	-	**140.1%**	**354**	**0**	**46**	**452.5**	-	-
Unnamed Junction	-	-	-		-	-	-	-	-	-	**140.1%**	**354**	**0**	**46**	**452.5**	-	-
1/1+1/2	A264 Pembury Road East_Approach Left Ahead Right	U+O	A		2	144	-	1630	1897:1955	1130+34	140.1 : 140.1%	3	0	31	311.4	687.8	356.3
2/1	Halls Hole Road_Approach Right Left Ahead	O	B		1	59	-	582	2194	416	139.9%	338	0	15	115.2	712.5	134.6
3/1+3/2	A264 Pembury Road West_Approach Ahead Left	U	C		2	144	-	1243	1874:2080	14+1259	97.7 : 97.7%	-	-	-	23.9	69.1	59.9
4/1+4/2	Blackhurst Lane_Approach Left Ahead Right	U+O	D		1	59	-	94	1756:1721	391+63	20.7 : 20.7%	13	0	0	2.0	75.5	4.4
5/1	A264 Pembury Road East_Exit	U	-		-	-	-	555	2015	2015	20.6%	-	-	-	0.1	1.1	0.1
Ped Link: P1	Unnamed Ped Link	-	F		1	7	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P2	Unnamed Ped Link	-	E		1	14	-	0	-	0	0.0%	-	-	-	-	-	-

C1

PRC for Signalled Lanes (%): -55.7
PRC Over All Lanes (%): -55.7

Total Delay for Signalled Lanes (pcuHr): 452.42
Total Delay Over All Lanes(pcuHr): 452.55

Cycle Time (s): 240

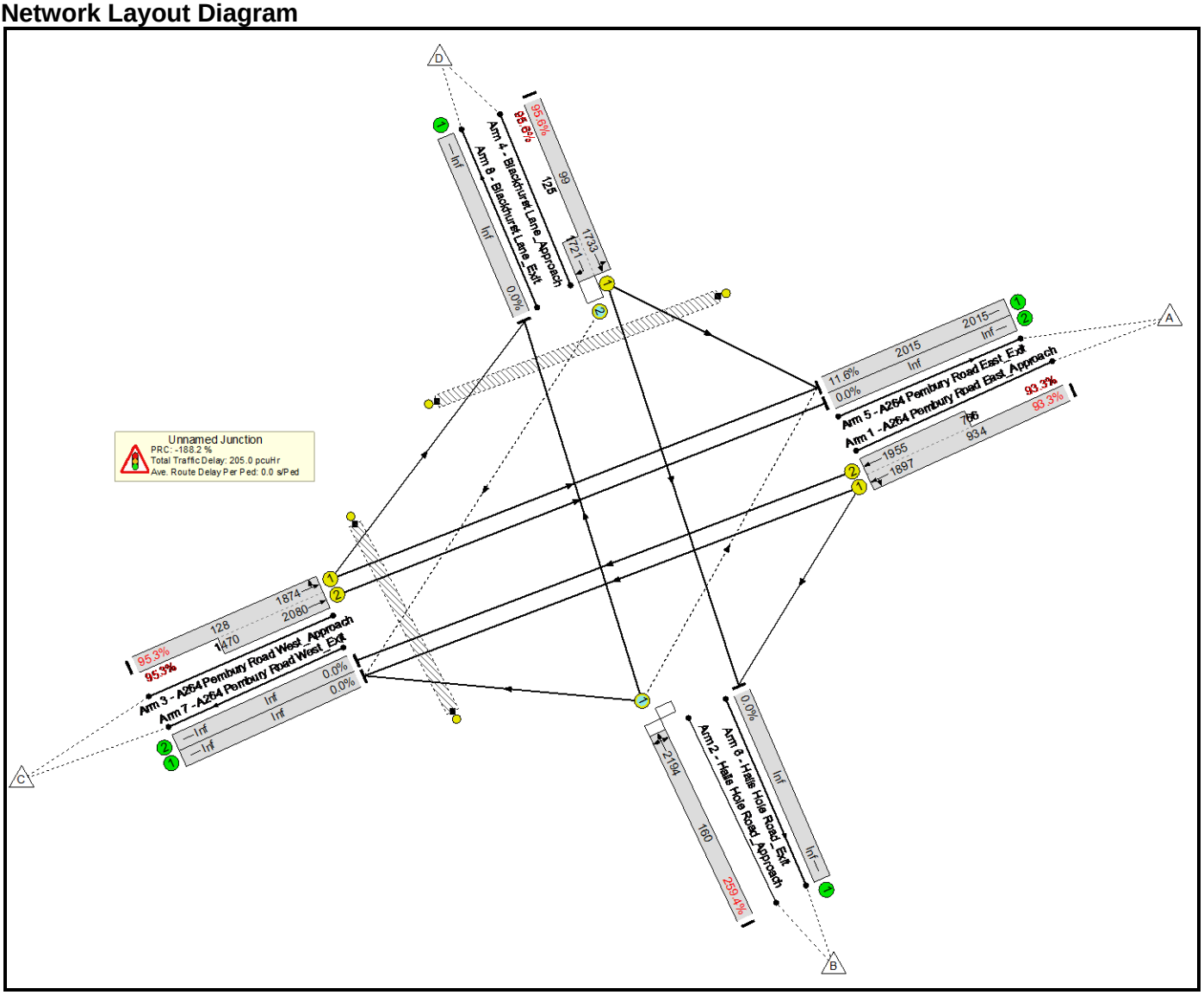
Basic Results Summary

User and Project Details

Project:	
Title:	
Location:	
Additional detail:	
File name:	23 - A264 Pembury Road_Halls Hole Road_Mit 2 norightturn.lsg3x
Author:	
Company:	
Address:	

Scenario 1: 'Ref Case 2038 AM' (FG1: 'Ref Case AM', Plan 3: 'With Peds_double cycle')

Network Layout Diagram



Basic Results Summary

Network Results

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**259.4%**	**252**	**0**	**17**	**205.0**	**-**	**-**
Unnamed Junction	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**259.4%**	**252**	**0**	**17**	**205.0**	**-**	**-**
1/1+1/2	A264 Pembury Road East_Approach Left Ahead	U	A		2	180	-	1586	1897:1955	934+766	93.3 : 93.3%	-	-	-	9.4	21.3	40.5
2/1	Halls Hole Road_Approach Right Left Ahead	O	B		1	23	-	416	2194	160	259.4%	132	0	17	169.9	1470.4	179.8
3/1+3/2	A264 Pembury Road West_Approach Ahead Left	U	C		2	180	-	1523	1874:2080	128+1470	95.3 : 95.3%	-	-	-	14.0	33.1	60.8
4/1+4/2	Blackhurst Lane_Approach Left Ahead Right	U+O	D		1	23	-	215	1733:1721	99+125	95.6 : 95.6%	120	0	0	11.6	194.5	16.6
5/1	A264 Pembury Road East_Exit	U	-		-	-	-	470	2015	2015	11.6%	-	-	-	0.1	1.0	0.1
Ped Link: P1	Unnamed Ped Link	-	F		1	7	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P2	Unnamed Ped Link	-	E		1	14	-	0	-	0	0.0%	-	-	-	-	-	-

C1

PRC for Signalled Lanes (%): -188.2
PRC Over All Lanes (%): -188.2

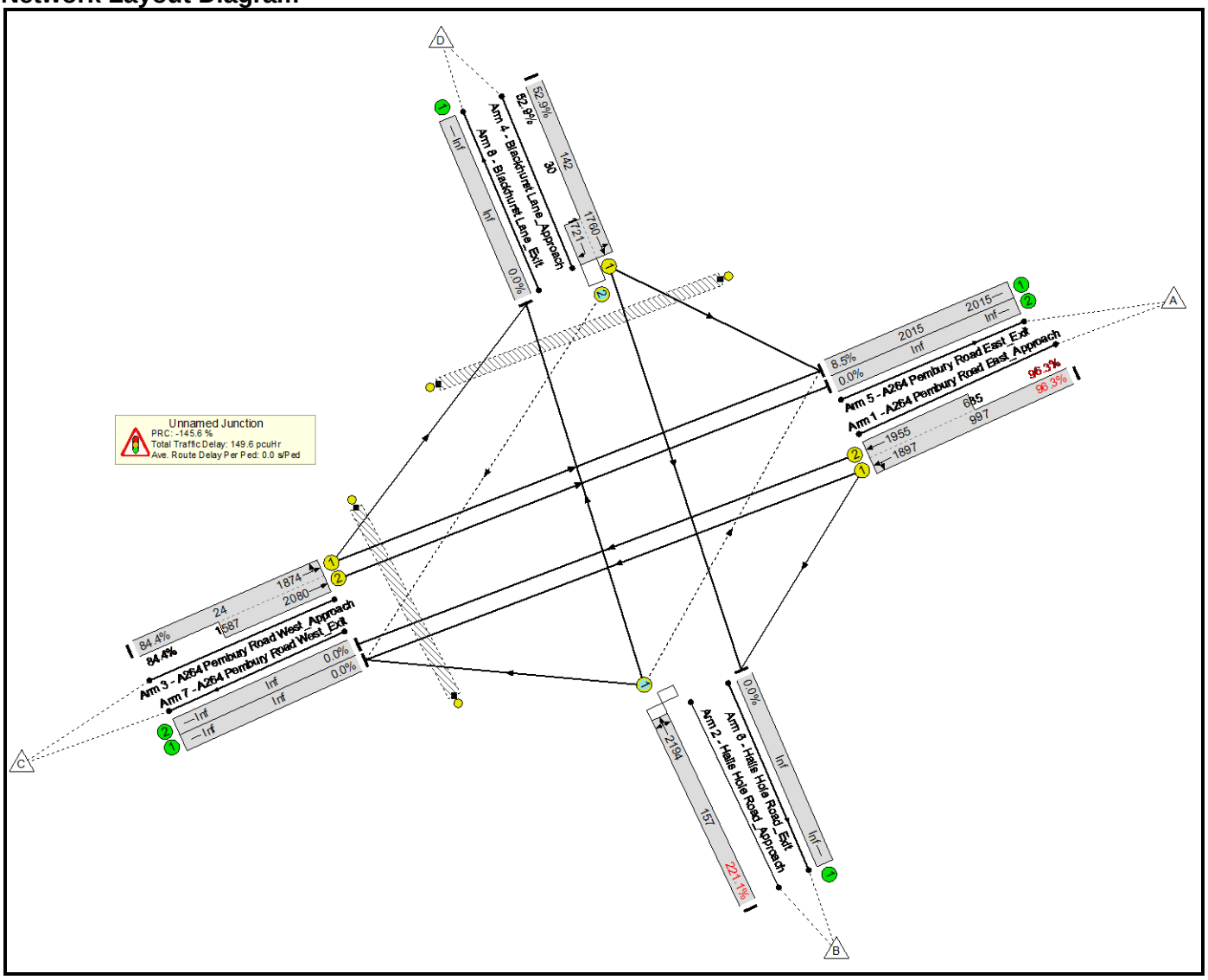
Total Delay for Signalled Lanes (pcuHr): 204.93
Total Delay Over All Lanes(pcuHr): 205.00

Cycle Time (s): 240

Basic Results Summary

Scenario 2: 'Ref Case 2038 PM' (FG2: 'Ref Case PM', Plan 3: 'With Peds_double cycle')

Network Layout Diagram



Basic Results Summary

Network Results

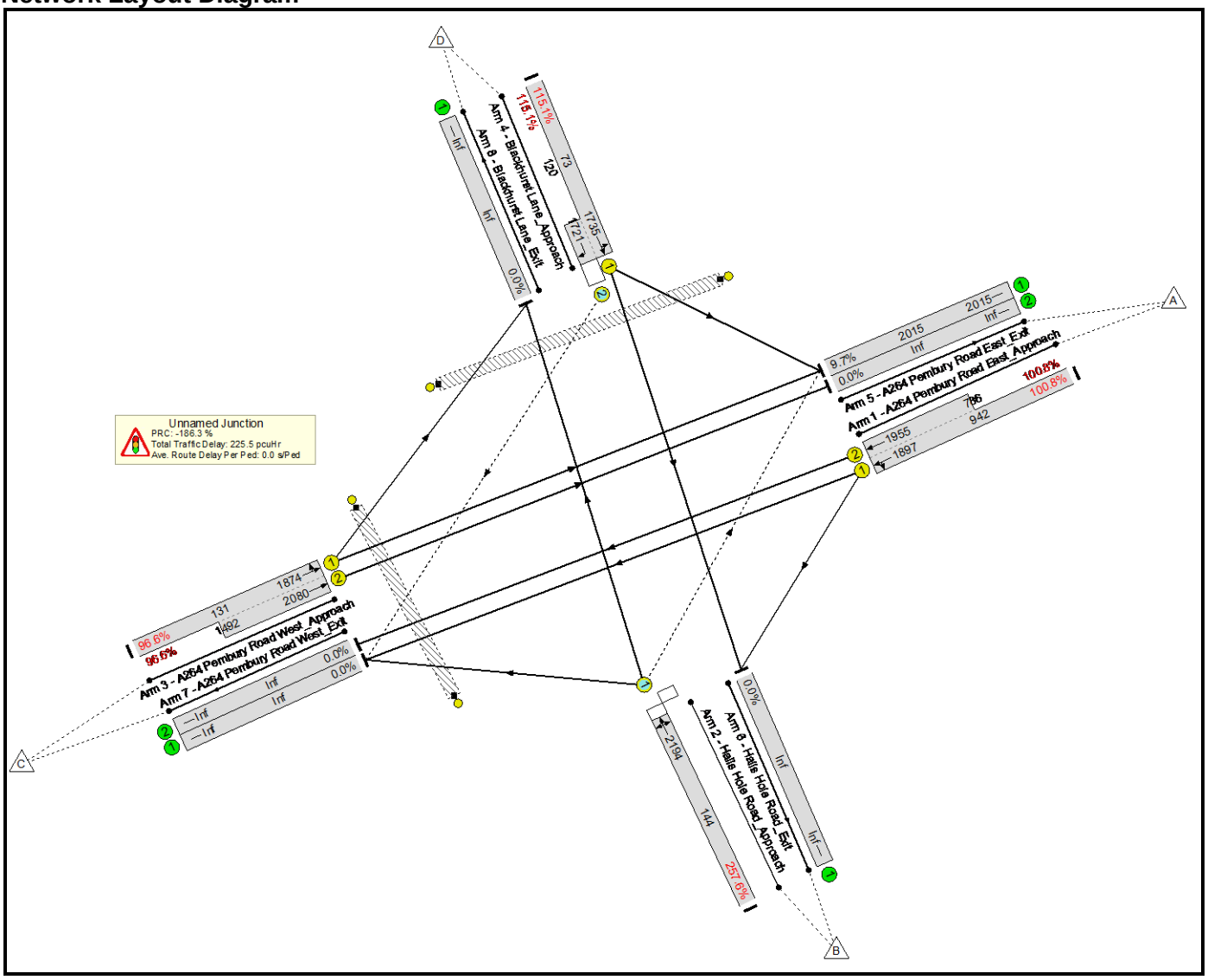
Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	-	-	-		-	-	-	-	-	-	**221.1%**	**120**	**0**	**13**	**149.6**	-	-
Unnamed Junction	-	-	-		-	-	-	-	-	-	**221.1%**	**120**	**0**	**13**	**149.6**	-	-
1/1+1/2	A264 Pembury Road East_Approach Left Ahead	U	A		2	183	-	1620	1897:1955	997+685	96.3 : 96.3%	-	-	-	13.2	29.4	49.8
2/1	Halls Hole Road_Approach Right Left Ahead	O	B		1	20	-	348	2194	157	221.1%	104	0	13	127.1	1315.1	134.3
3/1+3/2	A264 Pembury Road West_Approach Ahead Left	U	C		2	183	-	1360	1874:2080	24+1587	84.4 : 84.4%	-	-	-	6.0	15.9	33.5
4/1+4/2	Blackhurst Lane_Approach Left Ahead Right	U+O	D		1	20	-	91	1760:1721	142+30	52.9 : 52.9%	16	0	0	3.2	125.9	5.5
5/1	A264 Pembury Road East_Exit	U	-		-	-	-	313	2015	2015	8.5%	-	-	-	0.0	1.0	0.0
Ped Link: P1	Unnamed Ped Link	-	F		1	7	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P2	Unnamed Ped Link	-	E		1	14	-	0	-	0	0.0%	-	-	-	-	-	-

C1 PRC for Signalled Lanes (%): -145.6 Total Delay for Signalled Lanes (pcuHr): 149.56 Cycle Time (s): 240
PRC Over All Lanes (%): -145.6 Total Delay Over All Lanes(pcuHr): 149.60

Basic Results Summary

Scenario 3: 'Local Plan 2038 AM' (FG3: 'Local Plan AM', Plan 3: 'With Peds_double cycle')

Network Layout Diagram



Basic Results Summary

Network Results

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	-	-	-		-	-	-	-	-	-	**257.6%**	**230**	**0**	**23**	**225.5**	-	-
Unnamed Junction	-	-	-		-	-	-	-	-	-	**257.6%**	**230**	**0**	**23**	**225.5**	-	-
1/1+1/2	A264 Pembury Road East_Approach Left Ahead	U	A		2	183	-	1742	1897:1955	942+786	100.8 : 100.8%	-	-	-	30.5	63.0	93.8
2/1	Halls Hole Road_Approach Right Left Ahead	O	B		1	20	-	372	2194	144	257.6%	115	0	17	151.7	1468.1	160.1
3/1+3/2	A264 Pembury Road West_Approach Ahead Left	U	C		2	183	-	1568	1874:2080	131+1492	96.6 : 96.6%	-	-	-	15.8	36.2	62.2
4/1+4/2	Blackhurst Lane_Approach Left Ahead Right	U+O	D		1	20	-	222	1735:1721	73+120	115.1 : 115.1%	115	0	5	27.5	446.2	32.4
5/1	A264 Pembury Road East_Exit	U	-		-	-	-	415	2015	2015	9.7%	-	-	-	0.1	1.0	0.1
Ped Link: P1	Unnamed Ped Link	-	F		1	7	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P2	Unnamed Ped Link	-	E		1	14	-	0	-	0	0.0%	-	-	-	-	-	-

C1

PRC for Signalled Lanes (%): -186.3
PRC Over All Lanes (%): -186.3

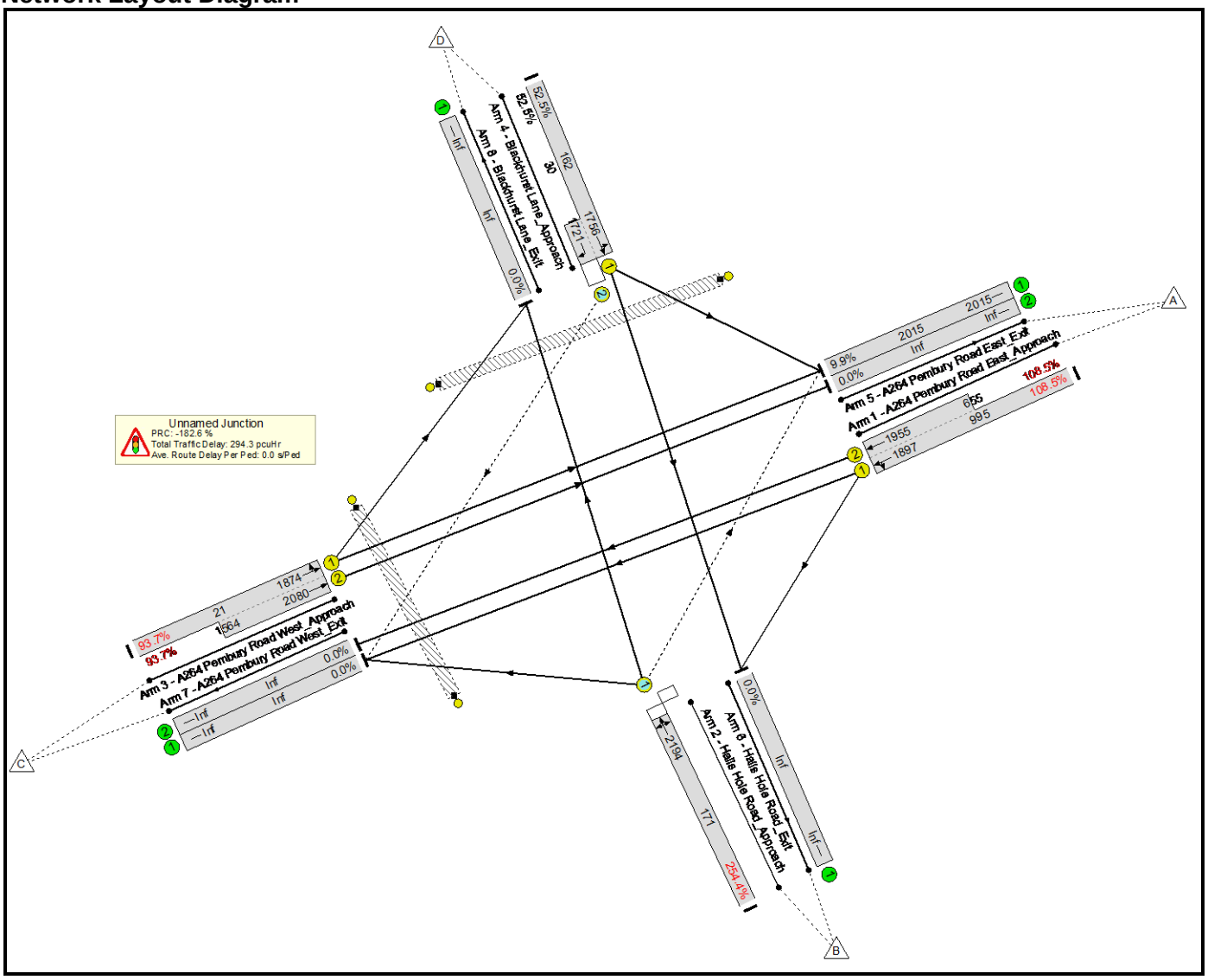
Total Delay for Signalled Lanes (pcuHr): 225.49
Total Delay Over All Lanes(pcuHr): 225.54

Cycle Time (s): 240

Basic Results Summary

Scenario 4: 'Local Plan 2038 PM' (FG4: 'Local Plan PM', Plan 3: 'With Peds_double cycle')

Network Layout Diagram



Basic Results Summary

Network Results

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**254.4%**	**137**	**0**	**14**	**294.3**	**-**	**-**
Unnamed Junction	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**254.4%**	**137**	**0**	**14**	**294.3**	**-**	**-**
1/1+1/2	A264 Pembury Road East_Approach Left Ahead	U	A		2	180	-	1789	1897:1955	995+655	108.5 : 108.5%	-	-	-	100.0	201.2	164.4
2/1	Halls Hole Road_Approach Right Left Ahead	O	B		1	23	-	434	2194	171	254.4%	121	0	14	178.1	1477.7	187.6
3/1+3/2	A264 Pembury Road West_Approach Ahead Left	U	C		2	180	-	1485	1874:2080	21+1564	93.7 : 93.7%	-	-	-	12.7	30.8	54.2
4/1+4/2	Blackhurst Lane_Approach Left Ahead Right	U+O	D		1	23	-	101	1756:1721	162+30	52.5 : 52.5%	16	0	0	3.4	121.3	6.2
5/1	A264 Pembury Road East_Exit	U	-		-	-	-	407	2015	2015	9.9%	-	-	-	0.1	1.0	0.1
Ped Link: P1	Unnamed Ped Link	-	F		1	7	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P2	Unnamed Ped Link	-	E		1	14	-	0	-	0	0.0%	-	-	-	-	-	-

C1

PRC for Signalled Lanes (%): -182.6
PRC Over All Lanes (%): -182.6

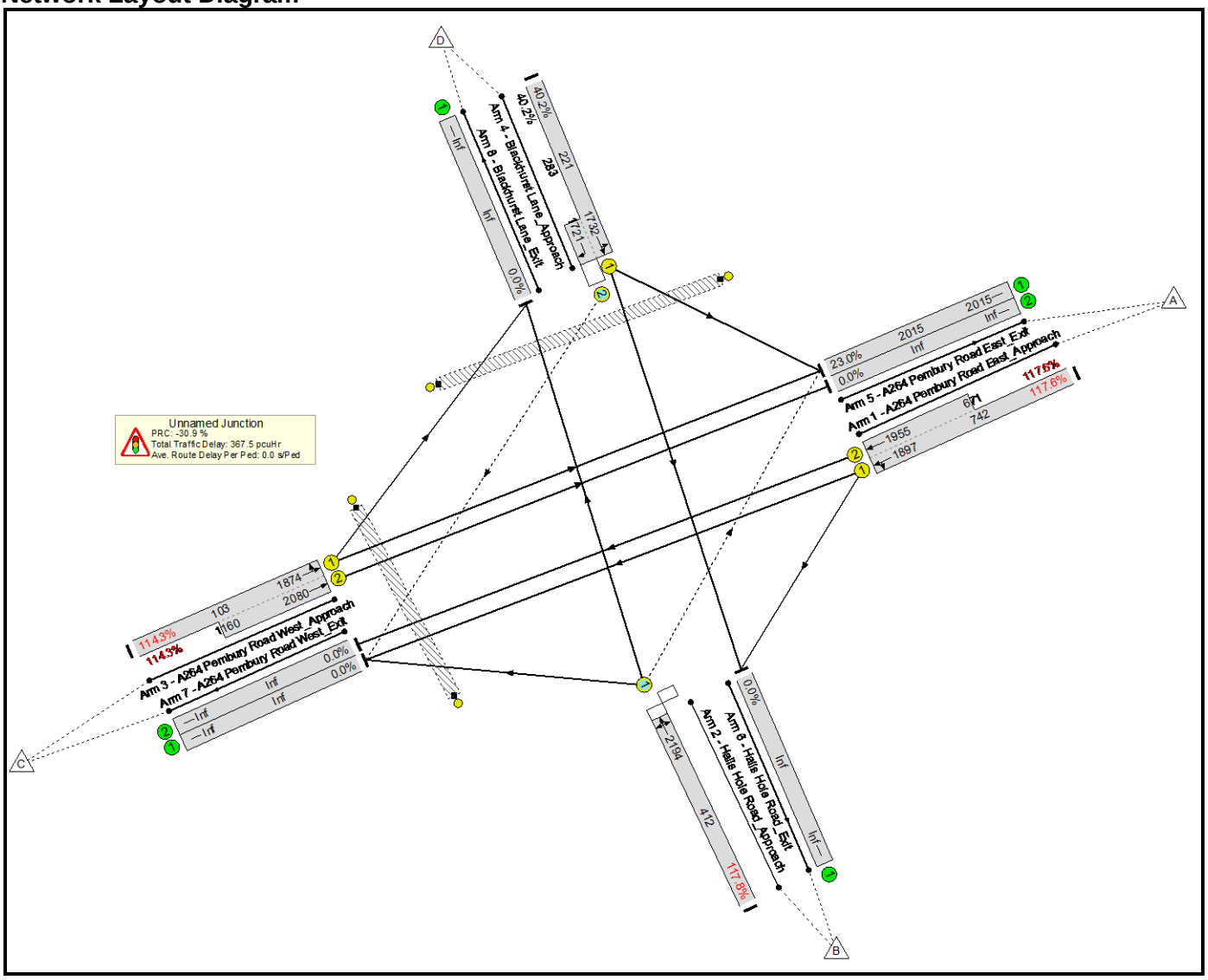
Total Delay for Signalled Lanes (pcuHr): 294.24
Total Delay Over All Lanes(pcuHr): 294.30

Cycle Time (s): 240

Basic Results Summary

Scenario 5: 'Local Plan 2038 MS AM' (FG5: 'Local Plan MS AM', Plan 3: 'With Peds_double cycle')

Network Layout Diagram



Basic Results Summary

Network Results

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	-	-	-		-	-	-	-	-	-	**117.8%**	**481**	**0**	**17**	**367.5**	-	-
Unnamed Junction	-	-	-		-	-	-	-	-	-	**117.8%**	**481**	**0**	**17**	**367.5**	-	-
1/1+1/2	A264 Pembury Road East_Approach Left Ahead	U	A		2	141	-	1662	1897:1955	742+671	117.6 : 117.6%	-	-	-	172.8	374.3	230.6
2/1	Halls Hole Road_Approach Right Left Ahead	O	B		1	62	-	485	2194	412	117.8%	367	0	17	58.2	432.0	77.0
3/1+3/2	A264 Pembury Road West_Approach Ahead Left	U	C		2	141	-	1443	1874:2080	103+1160	114.3 : 114.3%	-	-	-	132.1	329.5	190.8
4/1+4/2	Blackhurst Lane_Approach Left Ahead Right	U+O	D		1	62	-	203	1732:1721	221+283	40.2 : 40.2%	114	0	0	4.3	76.6	8.3
5/1	A264 Pembury Road East_Exit	U	-		-	-	-	531	2015	2015	23.0%	-	-	-	0.1	1.2	0.1
Ped Link: P1	Unnamed Ped Link	-	F		1	7	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P2	Unnamed Ped Link	-	E		1	14	-	0	-	0	0.0%	-	-	-	-	-	-

C1

PRC for Signalled Lanes (%): -30.9
PRC Over All Lanes (%): -30.9

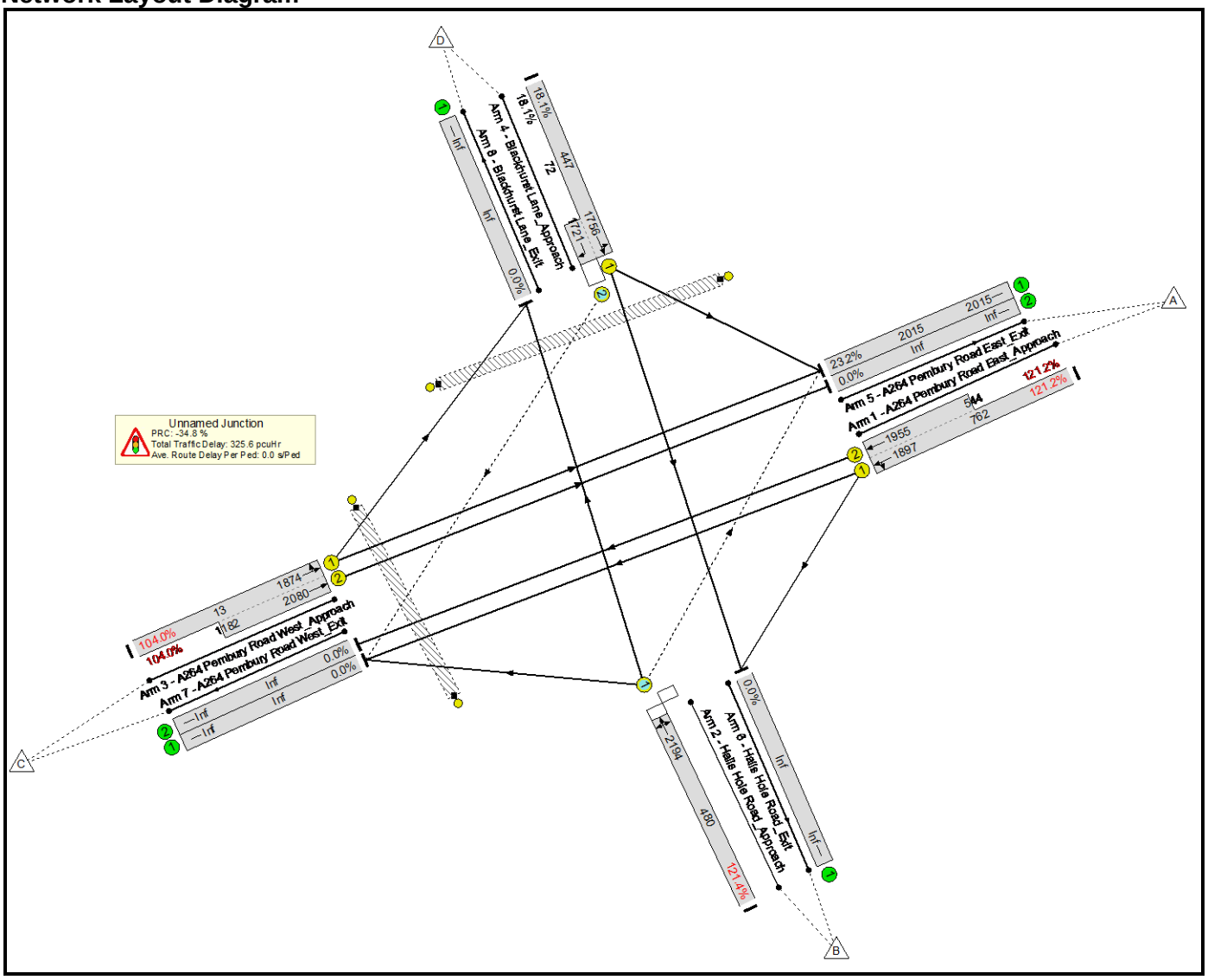
Total Delay for Signalled Lanes (pcuHr): 367.40
Total Delay Over All Lanes(pcuHr): 367.54

Cycle Time (s): 240

Basic Results Summary

Scenario 6: 'Local Plan 2038 MS PM' (FG6: 'Local Plan MS PM', Plan 3: 'With Peds_double cycle')

Network Layout Diagram



Basic Results Summary

Network Results

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	-	-	-		-	-	-	-	-	-	**121.4%**	**405**	**0**	**15**	**325.6**	-	-
Unnamed Junction	-	-	-		-	-	-	-	-	-	**121.4%**	**405**	**0**	**15**	**325.6**	-	-
1/1+1/2	A264 Pembury Road East_Approach Left Ahead	U	A		2	135	-	1583	1897:1955	762+544	121.2 : 121.2%	-	-	-	192.0	436.6	232.6
2/1	Halls Hole Road_Approach Right Left Ahead	O	B		1	68	-	582	2194	480	121.4%	392	0	15	77.5	479.2	99.6
3/1+3/2	A264 Pembury Road West_Approach Ahead Left	U	C		2	135	-	1243	1874:2080	13+1182	104.0 : 104.0%	-	-	-	54.2	157.1	97.2
4/1+4/2	Blackhurst Lane_Approach Left Ahead Right	U+O	D		1	68	-	94	1756:1721	447+72	18.1 : 18.1%	13	0	0	1.8	67.8	4.2
5/1	A264 Pembury Road East_Exit	U	-		-	-	-	555	2015	2015	23.2%	-	-	-	0.2	1.2	0.2
Ped Link: P1	Unnamed Ped Link	-	F		1	7	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P2	Unnamed Ped Link	-	E		1	14	-	0	-	0	0.0%	-	-	-	-	-	-

C1

PRC for Signalled Lanes (%): -34.8
PRC Over All Lanes (%): -34.8

Total Delay for Signalled Lanes (pcuHr): 325.45
Total Delay Over All Lanes(pcuHr): 325.60

Cycle Time (s): 240

Junctions 9

ARCADY 9 - Roundabout Module

Version: 9.0.2.5947

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+44 (0)1344 770558 software@trl.co.uk www.trlsoftware.co.uk

Filename: 23 - A264 Pembury Road_Halls Hole Road_Mit 3 Rdbt.j9
Path: T:\Tunbridge Wells\3. Technical\3.5 Junction models\Models\2022 Models\Junction 23_Halls Hole\efef
Report generation date: 09/03/2022 09:41:40

Summary of junction performance

	AM					PM				
	Queue (PCU)	Delay (s)	RFC	LOS	Junction Delay (s)	Queue (PCU)	Delay (s)	RFC	LOS	Junction Delay (s)
	Local Plan MS									
A - Pembury Rd (W)	133.3	314.28	1.16	F	340.89	58.5	130.20	1.06	F	157.58
B - Blackhurst Ln	2.4	41.19	0.72	E		0.7	24.43	0.41	C	
C - Pembury Rd (E)	153.1	316.28	1.17	F		66.2	120.11	1.06	F	
D - Hall's Hole Rd	75.3	639.21	1.31	F		55.7	346.58	1.19	F	

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. Junction LOS and Junction Delay are demand-weighted averages.

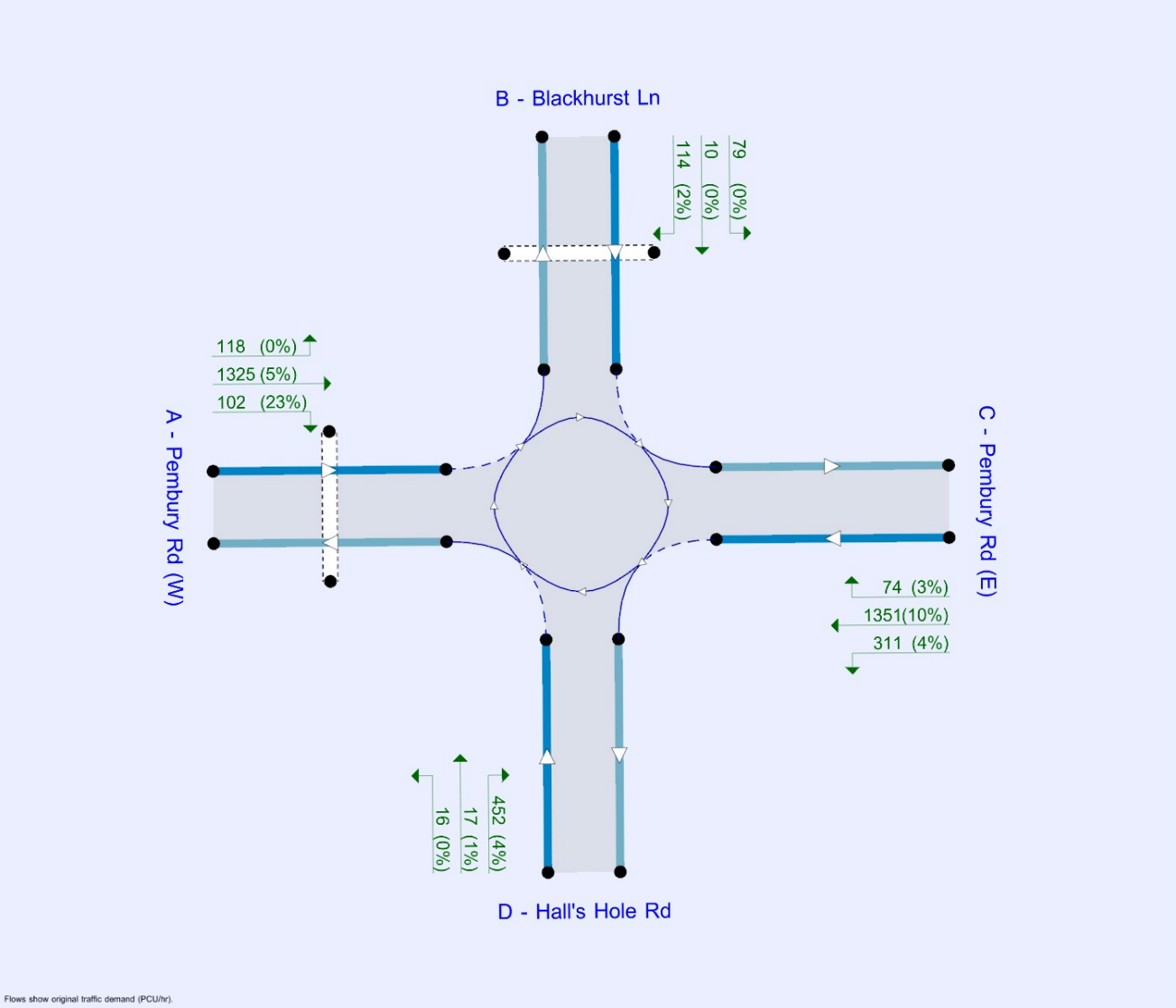
File summary

File Description

Title	Halls Hole Rbt With Crossings
Location	Tunbridge Wells
Site number	
Date	11/01/2021
Version	
Status	(new file)
Identifier	
Client	Stantec
Jobnumber	20013
Enumerator	jct\simon.swanston
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	PCU	PCU	perHour	s	-Min	perMin



The junction diagram reflects the last run of Junctions.

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
D5	Local Plan MS	AM	ONE HOUR	07:15	08:45	15	✓
D6	Local Plan MS	PM	ONE HOUR	16:30	18:00	15	✓

Analysis Set Details

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

Local Plan MS, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout	A, B, C, D	340.89	F

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
A	Pembury Rd (W)	
B	Blackhurst Ln	
C	Pembury Rd (E)	
D	Hall's Hole Rd	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
A - Pembury Rd (W)	4.00	7.00	21.5	11.0	44.0	32.0	
B - Blackhurst Ln	3.00	4.50	14.5	22.0	44.0	33.0	
C - Pembury Rd (E)	3.50	7.00	29.0	20.0	44.0	37.0	
D - Hall's Hole Rd	3.00	4.20	9.5	22.0	44.0	23.0	

Pelican/Puffin Crossings

Arm	Space between crossing and junction entry (Signalised) (PCU)	Amber time preceding red (s)	Amber time regarded as green (s)	Time from traffic red start to green man start (s)	Time period green man shown (s)	Clearance Period (s)	Traffic minimum green (s)
A - Pembury Rd (W)	16.00	3.00	2.90	3.00	6.00	9.00	60.00
B - Blackhurst Ln	2.00	3.00	2.90	3.00	6.00	6.00	30.00

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A - Pembury Rd (W)	0.628	1754
B - Blackhurst Ln	0.540	1243
C - Pembury Rd (E)	0.640	1781
D - Hall's Hole Rd	0.542	1201

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D5	Local Plan MS	AM	ONE HOUR	07:15	08:45	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 (PCU/hr)	Scaling Factor (%)
A - Pembury Rd (W)		ONE HOUR	✓	1545	100.000
B - Blackhurst Ln		ONE HOUR	✓	203	100.000
C - Pembury Rd (E)		ONE HOUR	✓	1736	100.000
D - Hall's Hole Rd		ONE HOUR	✓	485	100.000

Demand overview (Pedestrians)

Arm	Profile type	Average pedestrian flow (Ped/hr)
A - Pembury Rd (W)	[ONEHOUR]	120.00
B - Blackhurst Ln	[ONEHOUR]	200.00
C - Pembury Rd (E)		
D - Hall's Hole Rd		

Origin-Destination Data

Demand (PCU/hr)

		To			
		A - Pembury Rd (W)	B - Blackhurst Ln	C - Pembury Rd (E)	D - Hall's Hole Rd
From	A - Pembury Rd (W)	0	118	1325	102
	B - Blackhurst Ln	114	0	79	10
	C - Pembury Rd (E)	1351	74	0	311
	D - Hall's Hole Rd	16	17	452	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A - Pembury Rd (W)	B - Blackhurst Ln	C - Pembury Rd (E)	D - Hall's Hole Rd
From	A - Pembury Rd (W)	0	0	5	23
	B - Blackhurst Ln	2	0	0	0
	C - Pembury Rd (E)	10	3	0	4
	D - Hall's Hole Rd	0	1	4	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A - Pembury Rd (W)	1.16	314.28	133.3	F	1418	2127
B - Blackhurst Ln	0.72	41.19	2.4	E	186	279
C - Pembury Rd (E)	1.17	316.28	153.1	F	1593	2389
D - Hall's Hole Rd	1.31	639.21	75.3	F	445	668

Local Plan MS, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout	A, B, C, D	157.58	F

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	Local Plan MS	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 (PCU/hr)	Scaling Factor (%)
A - Pembury Rd (W)		ONE HOUR	✓	1344	100.000
B - Blackhurst Ln		ONE HOUR	✓	94	100.000
C - Pembury Rd (E)		ONE HOUR	✓	1630	100.000
D - Hall's Hole Rd		ONE HOUR	✓	584	100.000

Demand overview (Pedestrians)

Arm	Profile type	Average pedestrian flow (Ped/hr)
A - Pembury Rd (W)	[ONEHOUR]	120.00
B - Blackhurst Ln	[ONEHOUR]	200.00
C - Pembury Rd (E)		
D - Hall's Hole Rd		

Origin-Destination Data

Demand (PCU/hr)

		To			
		A - Pembury Rd (W)	B - Blackhurst Ln	C - Pembury Rd (E)	D - Hall's Hole Rd
From	A - Pembury Rd (W)	0	14	1229	101
	B - Blackhurst Ln	13	0	61	20
	C - Pembury Rd (E)	1118	47	0	465
	D - Hall's Hole Rd	11	77	496	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A - Pembury Rd (W)	B - Blackhurst Ln	C - Pembury Rd (E)	D - Hall's Hole Rd
From	A - Pembury Rd (W)	0	11	3	23
	B - Blackhurst Ln	0	0	4	0
	C - Pembury Rd (E)	3	1	0	1
	D - Hall's Hole Rd	0	5	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A - Pembury Rd (W)	1.06	130.20	58.5	F	1233	1850
B - Blackhurst Ln	0.41	24.43	0.7	C	86	129
C - Pembury Rd (E)	1.06	120.11	66.2	F	1496	2244
D - Hall's Hole Rd	1.19	346.58	55.7	F	536	804

Junction 35: Kippings Cross Roundabout (A21 / B2160)

Arcady

- Reference Case
- Local Plan
- Local Plan Mitigation Scenario

Linsig

- Local Plan MS with Indirect Signals mitigation

Junctions 9

ARCADY 9 - Roundabout Module

Version: 9.0.2.5947

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Filename: 35 - Kippings Cross Roundabout.j9
Path: T:\Tunbridge Wells\3. Technical\3.5 Junction models\Models\2022 Models\Junction 35_Kipping Cross\Direct Saturn flows
Report generation date: 09/03/2022 09:30:37

Summary of junction performance

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
	Ref Case 2038							
1 - B2160	2.9	12.16	0.74	B	0.7	6.96	0.42	A
2 - A21 east	168.9	565.92	1.33	F	5.4	20.15	0.84	C
3 - Dundale Road	0.1	12.00	0.09	B	0.2	7.74	0.18	A
4 - A21 west	1.2	3.01	0.51	A	3.4	5.96	0.77	A
	Local Plan 2038							
1 - B2160	1.8	8.32	0.64	A	0.5	5.62	0.34	A
2 - A21 east	537.3	1625.75	1.69	F	4.4	15.86	0.81	C
3 - Dundale Road	0.1	10.70	0.08	B	0.2	7.11	0.19	A
4 - A21 west	1.1	2.91	0.50	A	5.9	9.39	0.85	A
	Local Plan MS 2038							
1 - B2160	1.6	7.57	0.61	A	0.5	5.38	0.31	A
2 - A21 east	406.9	1198.86	1.55	F	3.1	11.75	0.74	B
3 - Dundale Road	0.1	10.40	0.07	B	0.2	6.34	0.16	A
4 - A21 west	1.0	2.81	0.48	A	3.9	6.66	0.79	A

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

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

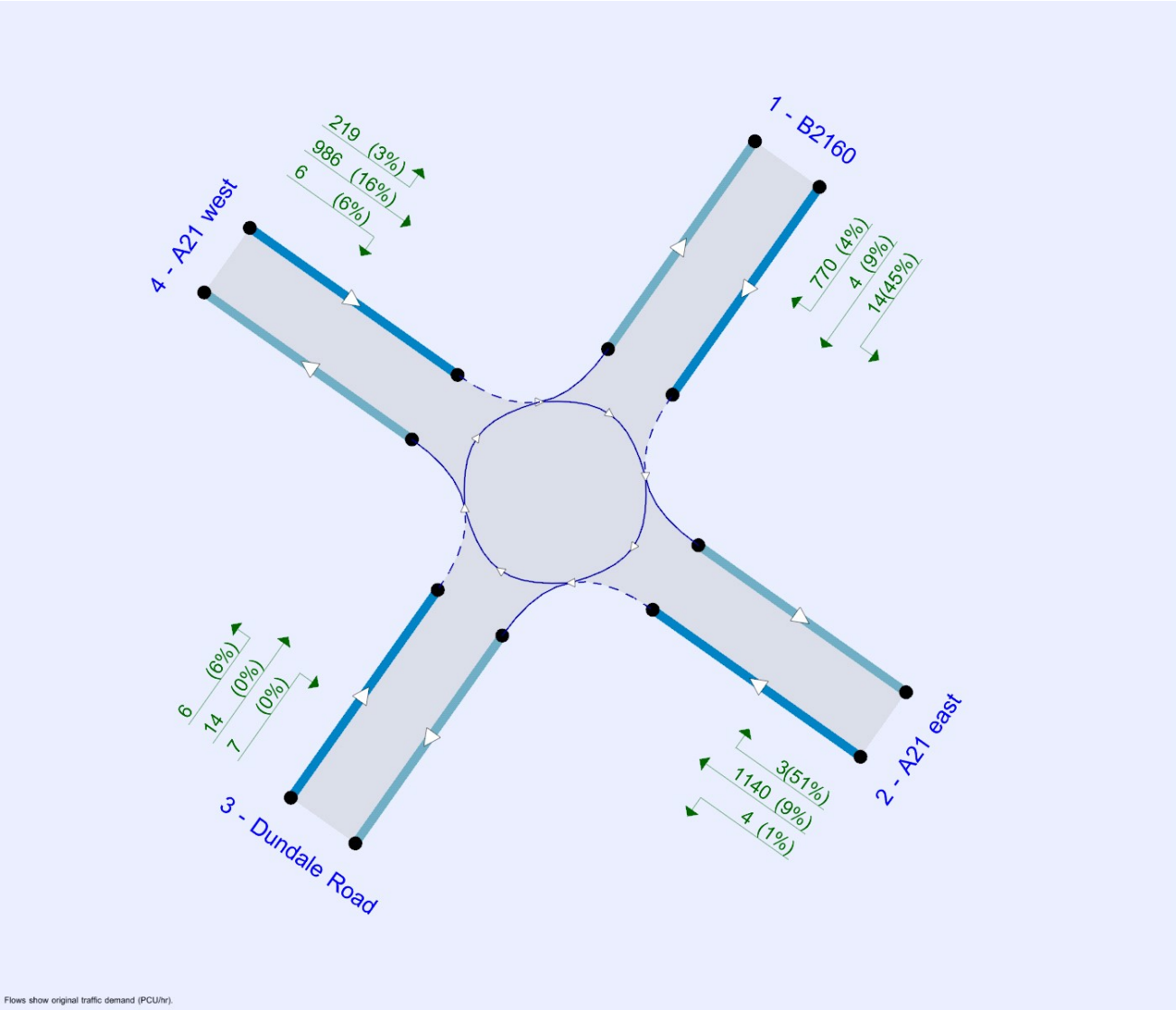
File summary

File Description

Title	(untitled)
Location	
Site number	
Date	14/10/2020
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	SWECO\GBGWJY
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	PCU	PCU	perHour	s	-Min	perMin



The junction diagram reflects the last run of Junctions.

Analysis Options

Calculate Queue Percentiles	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
		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)
D3	Ref Case 2038	AM	ONE HOUR	08:00	09:30	15
D4	Ref Case 2038	PM	ONE HOUR	17:00	18:30	15
D5	Local Plan 2038	AM	ONE HOUR	08:00	09:30	15
D6	Local Plan 2038	PM	ONE HOUR	17:00	18:30	15
D7	Local Plan MS 2038	AM	ONE HOUR	08:00	09:30	15
D8	Local Plan MS 2038	PM	ONE HOUR	17:00	18:30	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

Ref Case 2038, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - B2160 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	2 - A21 east - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout	1, 2, 3, 4	203.84	F

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	B2160	
2	A21 east	
3	Dundale Road	
4	A21 west	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1 - B2160	2.70	8.58	34.9	30.1	48.4	36.3	
2 - A21 east	3.33	5.20	35.0	27.4	48.4	32.5	
3 - Dundale Road	2.78	8.80	7.6	42.1	48.4	28.7	
4 - A21 west	9.30	10.84	1.0	26.0	48.4	43.7	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1 - B2160	0.664	1965
2 - A21 east	0.578	1500
3 - Dundale Road	0.567	1401
4 - A21 west	0.814	2792

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D3	Ref Case 2038	AM	ONE HOUR	08:00	09:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - B2160		✓	788	100.000
2 - A21 east		✓	1147	100.000
3 - Dundale Road		✓	27	100.000
4 - A21 west		✓	1290	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - B2160	2 - A21 east	3 - Dundale Road	4 - A21 west
From	1 - B2160	0	14	4	770
	2 - A21 east	3	0	4	1140
	3 - Dundale Road	14	7	0	6
	4 - A21 west	219	986	6	79

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - B2160	2 - A21 east	3 - Dundale Road	4 - A21 west
From	1 - B2160	0	45	9	4
	2 - A21 east	51	0	1	9
	3 - Dundale Road	0	0	0	6
	4 - A21 west	3	16	6	7

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1 - B2160	0.74	12.16	2.9	B
2 - A21 east	1.33	565.92	168.9	F
3 - Dundale Road	0.09	12.00	0.1	B
4 - A21 west	0.51	3.01	1.2	A

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - B2160	593	810	1427	0.416	590	0.7	4.484	A
2 - A21 east	864	644	1127	0.766	850	3.3	13.575	B
3 - Dundale Road	20	1483	560	0.036	20	0.0	6.746	A
4 - A21 west	971	18	2777	0.350	969	0.6	2.246	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - B2160	708	968	1321	0.536	707	1.2	6.104	A
2 - A21 east	1031	770	1054	0.978	988	14.0	43.685	E
3 - Dundale Road	24	1746	411	0.059	24	0.1	9.414	A
4 - A21 west	1160	21	2774	0.418	1159	0.8	2.516	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - B2160	868	1186	1177	0.737	861	2.8	11.686	B
2 - A21 east	1263	939	956	1.320	954	91.3	210.055	F
3 - Dundale Road	30	1879	336	0.088	30	0.1	11.882	B
4 - A21 west	1420	26	2771	0.513	1419	1.2	3.005	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - B2160	868	1187	1176	0.738	867	2.9	12.156	B
2 - A21 east	1263	945	953	1.325	953	168.9	483.130	F
3 - Dundale Road	30	1884	333	0.089	30	0.1	12.001	B
4 - A21 west	1420	26	2771	0.513	1420	1.2	3.010	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - B2160	708	970	1320	0.537	715	1.2	6.287	A
2 - A21 east	1031	779	1049	0.983	1043	166.0	565.917	F
3 - Dundale Road	24	1809	376	0.065	24	0.1	10.369	B
4 - A21 west	1160	22	2774	0.418	1161	0.8	2.524	A

09:15 - 09:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - B2160	593	812	1425	0.416	595	0.8	4.545	A
2 - A21 east	864	649	1125	0.768	1117	102.6	434.090	F
3 - Dundale Road	20	1754	407	0.050	20	0.1	9.437	A
4 - A21 west	971	19	2776	0.350	972	0.6	2.255	A

Ref Case 2038, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - B2160 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	2 - A21 east - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout	1, 2, 3, 4	10.13	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 segment length (min)
D4	Ref Case 2038	PM	ONE HOUR	17:00	18:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - B2160		✓	346	100.000
2 - A21 east		✓	919	100.000
3 - Dundale Road		✓	95	100.000
4 - A21 west		✓	1893	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - B2160	2 - A21 east	3 - Dundale Road	4 - A21 west
From	1 - B2160	0	23	23	300
	2 - A21 east	28	0	5	886
	3 - Dundale Road	47	11	0	37
	4 - A21 west	456	1290	68	79

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - B2160	2 - A21 east	3 - Dundale Road	4 - A21 west
From	1 - B2160	100	10	0	1
	2 - A21 east	7	0	0	8
	3 - Dundale Road	0	3	0	14
	4 - A21 west	1	6	0	5

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1 - B2160	0.42	6.96	0.7	A
2 - A21 east	0.84	20.15	5.4	C
3 - Dundale Road	0.18	7.74	0.2	A
4 - A21 west	0.77	5.96	3.4	A

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - B2160	260	1087	1243	0.210	259	0.3	3.712	A
2 - A21 east	692	352	1296	0.534	687	1.2	6.332	A
3 - Dundale Road	72	967	853	0.084	71	0.1	4.851	A
4 - A21 west	1425	64	2739	0.520	1421	1.1	2.843	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - B2160	311	1300	1101	0.282	311	0.4	4.618	A
2 - A21 east	826	422	1256	0.658	823	2.0	8.910	A
3 - Dundale Road	85	1159	745	0.115	85	0.1	5.753	A
4 - A21 west	1702	77	2729	0.624	1699	1.7	3.647	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - B2160	381	1589	909	0.419	380	0.7	6.886	A
2 - A21 east	1012	516	1201	0.842	999	5.1	18.209	C
3 - Dundale Road	105	1410	602	0.174	104	0.2	7.616	A
4 - A21 west	2084	94	2715	0.768	2078	3.4	5.841	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - B2160	381	1594	906	0.421	381	0.7	6.962	A
2 - A21 east	1012	517	1200	0.843	1011	5.4	20.154	C
3 - Dundale Road	105	1422	595	0.176	105	0.2	7.736	A
4 - A21 west	2084	95	2715	0.768	2084	3.4	5.961	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - B2160	311	1307	1097	0.284	312	0.4	4.668	A
2 - A21 east	826	424	1254	0.659	839	2.1	9.639	A
3 - Dundale Road	85	1177	734	0.116	86	0.1	5.855	A
4 - A21 west	1702	78	2728	0.624	1708	1.8	3.711	A

18:15 - 18:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - B2160	260	1092	1239	0.210	261	0.3	3.736	A
2 - A21 east	692	355	1295	0.534	695	1.3	6.523	A
3 - Dundale Road	72	978	847	0.084	72	0.1	4.893	A
4 - A21 west	1425	65	2739	0.520	1428	1.1	2.875	A

Local Plan 2038, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - B2160 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	2 - A21 east - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout	1, 2, 3, 4	728.72	F

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)
D5	Local Plan 2038	AM	ONE HOUR	08:00	09:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - B2160		✓	707	100.000
2 - A21 east		✓	1600	100.000
3 - Dundale Road		✓	27	100.000
4 - A21 west		✓	1249	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - B2160	2 - A21 east	3 - Dundale Road	4 - A21 west
From	1 - B2160	0	0	1	706
	2 - A21 east	7	0	6	1587
	3 - Dundale Road	14	7	0	6
	4 - A21 west	237	1005	7	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - B2160	2 - A21 east	3 - Dundale Road	4 - A21 west
From	1 - B2160	0	74	9	2
	2 - A21 east	40	0	1	8
	3 - Dundale Road	0	0	0	6
	4 - A21 west	1	16	6	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1 - B2160	0.64	8.32	1.8	A
2 - A21 east	1.69	1625.75	537.3	F
3 - Dundale Road	0.08	10.70	0.1	B
4 - A21 west	0.50	2.91	1.1	A

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - B2160	532	765	1456	0.366	530	0.6	3.955	A
2 - A21 east	1205	535	1190	1.012	1127	19.3	43.068	E
3 - Dundale Road	20	1652	465	0.044	20	0.0	8.195	A
4 - A21 west	940	21	2775	0.339	938	0.6	2.207	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - B2160	636	915	1356	0.469	634	0.9	5.077	A
2 - A21 east	1438	641	1129	1.274	1127	97.3	199.730	F
3 - Dundale Road	24	1756	406	0.060	24	0.1	9.550	A
4 - A21 west	1123	24	2772	0.405	1122	0.8	2.458	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - B2160	778	1121	1220	0.638	775	1.8	8.188	A
2 - A21 east	1762	783	1047	1.682	1047	275.9	648.328	F
3 - Dundale Road	30	1817	371	0.080	30	0.1	10.665	B
4 - A21 west	1375	28	2769	0.497	1374	1.1	2.907	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - B2160	778	1122	1219	0.638	778	1.8	8.322	A
2 - A21 east	1762	786	1045	1.686	1045	455.1	1264.118	F
3 - Dundale Road	30	1818	371	0.080	30	0.1	10.696	B
4 - A21 west	1375	28	2769	0.497	1375	1.1	2.911	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - B2160	636	917	1355	0.469	639	0.9	5.151	A
2 - A21 east	1438	645	1126	1.277	1126	533.1	1548.035	F
3 - Dundale Road	24	1760	403	0.060	24	0.1	9.619	A
4 - A21 west	1123	24	2772	0.405	1124	0.8	2.464	A

09:15 - 09:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - B2160	532	768	1455	0.366	534	0.6	3.994	A
2 - A21 east	1205	539	1188	1.014	1188	537.3	1625.745	F
3 - Dundale Road	20	1716	429	0.047	20	0.1	8.933	A
4 - A21 west	940	21	2774	0.339	941	0.6	2.214	A

Local Plan 2038, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - B2160 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	2 - A21 east - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout	1, 2, 3, 4	10.73	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 segment length (min)
D6	Local Plan 2038	PM	ONE HOUR	17:00	18:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - B2160		✓	299	100.000
2 - A21 east		✓	932	100.000
3 - Dundale Road		✓	111	100.000
4 - A21 west		✓	2112	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - B2160	2 - A21 east	3 - Dundale Road	4 - A21 west
From	1 - B2160	0	2	22	275
	2 - A21 east	4	0	6	922
	3 - Dundale Road	59	14	0	38
	4 - A21 west	773	1274	65	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - B2160	2 - A21 east	3 - Dundale Road	4 - A21 west
From	1 - B2160	0	2	0	1
	2 - A21 east	78	0	0	8
	3 - Dundale Road	0	2	0	14
	4 - A21 west	2	6	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1 - B2160	0.34	5.62	0.5	A
2 - A21 east	0.81	15.86	4.4	C
3 - Dundale Road	0.19	7.11	0.2	A
4 - A21 west	0.85	9.39	5.9	A

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - B2160	225	1015	1290	0.174	224	0.2	3.404	A
2 - A21 east	702	272	1343	0.523	697	1.2	5.986	A
3 - Dundale Road	84	899	892	0.094	83	0.1	4.657	A
4 - A21 west	1590	58	2745	0.579	1584	1.4	3.220	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - B2160	269	1214	1158	0.232	268	0.3	4.082	A
2 - A21 east	838	325	1312	0.639	835	1.9	8.118	A
3 - Dundale Road	100	1077	791	0.126	100	0.2	5.447	A
4 - A21 west	1899	69	2735	0.694	1895	2.3	4.448	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - B2160	329	1481	981	0.336	328	0.5	5.563	A
2 - A21 east	1026	397	1270	0.808	1017	4.2	14.855	B
3 - Dundale Road	122	1312	657	0.186	122	0.2	7.030	A
4 - A21 west	2325	85	2723	0.854	2312	5.7	8.854	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - B2160	329	1489	975	0.338	329	0.5	5.622	A
2 - A21 east	1026	399	1269	0.809	1025	4.4	15.857	C
3 - Dundale Road	122	1322	652	0.187	122	0.2	7.108	A
4 - A21 west	2325	85	2723	0.854	2325	5.9	9.389	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - B2160	269	1225	1151	0.234	270	0.3	4.127	A
2 - A21 east	838	327	1311	0.639	847	2.0	8.570	A
3 - Dundale Road	100	1090	783	0.127	100	0.2	5.515	A
4 - A21 west	1899	69	2735	0.694	1913	2.4	4.640	A

18:15 - 18:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - B2160	225	1021	1286	0.175	225	0.2	3.425	A
2 - A21 east	702	273	1342	0.523	705	1.2	6.138	A
3 - Dundale Road	84	908	887	0.094	84	0.1	4.691	A
4 - A21 west	1590	58	2744	0.579	1594	1.4	3.276	A

Local Plan MS 2038 , AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - B2160 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	2 - A21 east - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout	1, 2, 3, 4	529.47	F

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)
D7	Local Plan MS 2038	AM	ONE HOUR	08:00	09:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - B2160		✓	682	100.000
2 - A21 east		✓	1496	100.000
3 - Dundale Road		✓	25	100.000
4 - A21 west		✓	1201	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - B2160	2 - A21 east	3 - Dundale Road	4 - A21 west
From	1 - B2160	0	0	2	680
	2 - A21 east	13	0	5	1478
	3 - Dundale Road	14	6	0	5
	4 - A21 west	217	977	7	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - B2160	2 - A21 east	3 - Dundale Road	4 - A21 west
From	1 - B2160	0	74	10	3
	2 - A21 east	53	0	1	9
	3 - Dundale Road	0	0	0	6
	4 - A21 west	1	16	6	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1 - B2160	0.61	7.57	1.6	A
2 - A21 east	1.55	1198.86	406.9	F
3 - Dundale Road	0.07	10.40	0.1	B
4 - A21 west	0.48	2.81	1.0	A

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - B2160	513	744	1471	0.349	511	0.5	3.857	A
2 - A21 east	1126	517	1201	0.938	1085	10.2	27.974	D
3 - Dundale Road	19	1591	499	0.038	19	0.0	7.575	A
4 - A21 west	904	24	2772	0.326	902	0.5	2.172	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - B2160	613	889	1374	0.446	612	0.8	4.861	A
2 - A21 east	1345	618	1142	1.178	1134	62.9	129.300	F
3 - Dundale Road	22	1741	415	0.054	22	0.1	9.286	A
4 - A21 west	1080	28	2769	0.390	1079	0.7	2.403	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - B2160	751	1089	1241	0.605	748	1.5	7.477	A
2 - A21 east	1647	756	1063	1.550	1062	209.0	468.019	F
3 - Dundale Road	28	1805	378	0.073	27	0.1	10.374	B
4 - A21 west	1322	31	2766	0.478	1321	1.0	2.810	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - B2160	751	1090	1241	0.605	751	1.6	7.570	A
2 - A21 east	1647	759	1061	1.552	1061	355.6	926.063	F
3 - Dundale Road	28	1806	378	0.073	28	0.1	10.401	B
4 - A21 west	1322	31	2766	0.478	1322	1.0	2.814	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - B2160	613	891	1373	0.447	616	0.8	4.919	A
2 - A21 east	1345	622	1140	1.180	1140	406.9	1193.616	F
3 - Dundale Road	22	1750	409	0.055	23	0.1	9.417	A
4 - A21 west	1080	28	2769	0.390	1081	0.7	2.411	A

09:15 - 09:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - B2160	513	746	1469	0.350	515	0.6	3.891	A
2 - A21 east	1126	520	1199	0.939	1196	389.5	1198.863	F
3 - Dundale Road	19	1705	435	0.043	19	0.0	8.753	A
4 - A21 west	904	25	2771	0.326	905	0.5	2.178	A

Local Plan MS 2038, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - B2160 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	2 - A21 east - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout	1, 2, 3, 4	7.92	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)
D8	Local Plan MS 2038	PM	ONE HOUR	17:00	18:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - B2160		✓	282	100.000
2 - A21 east		✓	873	100.000
3 - Dundale Road		✓	101	100.000
4 - A21 west		✓	1966	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - B2160	2 - A21 east	3 - Dundale Road	4 - A21 west
From	1 - B2160	0	16	21	245
	2 - A21 east	4	0	5	864
	3 - Dundale Road	54	13	0	34
	4 - A21 west	641	1264	61	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - B2160	2 - A21 east	3 - Dundale Road	4 - A21 west
From	1 - B2160	0	1	0	1
	2 - A21 east	74	0	0	8
	3 - Dundale Road	0	2	0	15
	4 - A21 west	2	6	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1 - B2160	0.31	5.38	0.5	A
2 - A21 east	0.74	11.75	3.1	B
3 - Dundale Road	0.16	6.34	0.2	A
4 - A21 west	0.79	6.66	3.9	A

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - B2160	212	1004	1298	0.164	212	0.2	3.344	A
2 - A21 east	657	245	1358	0.484	653	1.0	5.495	A
3 - Dundale Road	76	833	929	0.082	76	0.1	4.422	A
4 - A21 west	1480	53	2748	0.539	1475	1.2	2.944	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - B2160	254	1201	1167	0.217	253	0.3	3.976	A
2 - A21 east	785	294	1330	0.590	783	1.5	7.088	A
3 - Dundale Road	91	998	836	0.109	91	0.1	5.068	A
4 - A21 west	1767	64	2740	0.645	1765	1.9	3.846	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - B2160	310	1468	990	0.314	310	0.5	5.339	A
2 - A21 east	961	359	1292	0.744	955	3.0	11.366	B
3 - Dundale Road	111	1219	710	0.157	111	0.2	6.295	A
4 - A21 west	2165	78	2728	0.793	2157	3.9	6.490	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - B2160	310	1473	986	0.315	310	0.5	5.377	A
2 - A21 east	961	360	1291	0.744	961	3.1	11.750	B
3 - Dundale Road	111	1225	707	0.157	111	0.2	6.337	A
4 - A21 west	2165	78	2728	0.793	2164	3.9	6.664	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - B2160	254	1208	1162	0.218	254	0.3	4.005	A
2 - A21 east	785	295	1329	0.590	791	1.6	7.307	A
3 - Dundale Road	91	1007	830	0.109	91	0.1	5.109	A
4 - A21 west	1767	64	2740	0.645	1775	1.9	3.933	A

18:15 - 18:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - B2160	212	1009	1294	0.164	213	0.2	3.359	A
2 - A21 east	657	247	1357	0.484	659	1.0	5.600	A
3 - Dundale Road	76	840	925	0.082	76	0.1	4.448	A
4 - A21 west	1480	54	2748	0.539	1483	1.2	2.980	A

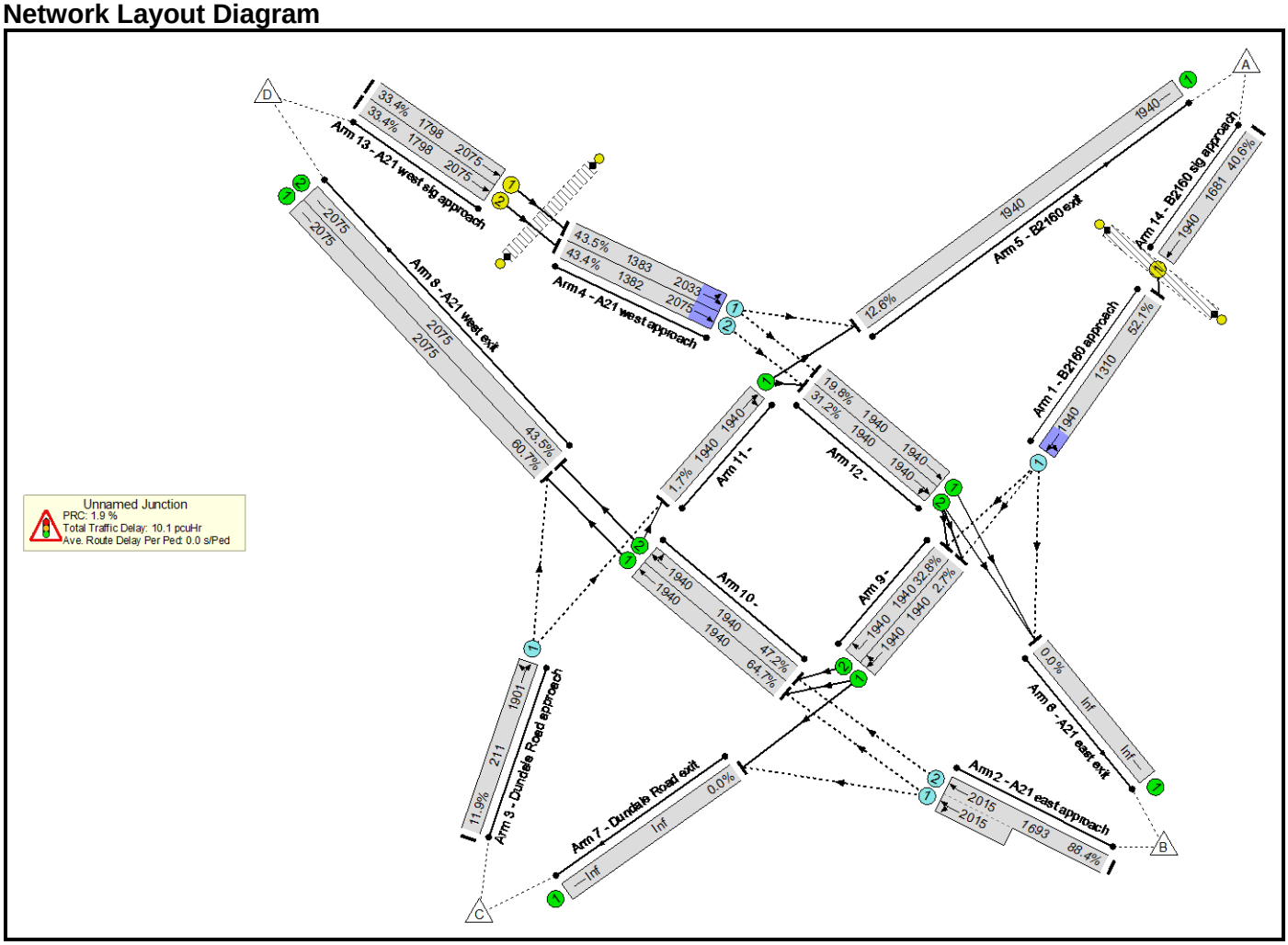
Basic Results Summary

User and Project Details

Project:	
Title:	
Location:	
Additional detail:	
File name:	35 - Kipping Cross Mit1_3 PedCrossingOnly.lsg3x
Author:	
Company:	
Address:	

Scenario 1: 'AM LP MS' (FG1: 'AM', Plan 1: 'Network Control Plan 1')

Network Layout Diagram



Basic Results Summary

Network Results

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**88.4%**	**4900**	**0**	**0**	**10.1**	**-**	**-**
Unnamed Junction	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**88.4%**	**4900**	**0**	**0**	**10.1**	**-**	**-**
1/1	B2160 approach Left Ahead	O	-		-	-	-	682	1940	1310	52.1%	682	0	0	0.6	3.3	3.8
2/2+2/1	A21 east approach Left Ahead	O	-		-	-	-	1496	2015:2015	1693	88.4%	2992	0	0	3.7	8.8	3.7
3/1	Dundale Road approach Left Ahead	O	-		-	-	-	25	1901	211	11.9%	25	0	0	0.1	11.1	0.2
4/1	A21 west approach Left Ahead	O	-		-	-	-	601	2033	1383	43.5%	601	0	0	0.4	2.6	1.4
4/2	A21 west approach Ahead	O	-		-	-	-	600	2075	1382	43.4%	600	0	0	0.4	2.6	1.4
5/1	B2160 exit	U	-		-	-	-	244	1940	1940	12.6%	-	-	-	0.1	1.1	0.1
8/1	A21 west exit	U	-		-	-	-	1260	2075	2075	60.7%	-	-	-	0.8	2.2	0.8
8/2	A21 west exit	U	-		-	-	-	903	2075	2075	43.5%	-	-	-	0.4	1.5	0.4
9/1	Ahead Right	U	-		-	-	-	52	1940	1940	2.7%	-	-	-	0.0	1.0	0.0
9/2	Right	U	-		-	-	-	637	1940	1940	32.8%	-	-	-	0.2	1.4	0.2
10/1	Ahead	U	-		-	-	-	1255	1940	1940	64.7%	-	-	-	0.9	2.6	0.9
10/2	Ahead Right	U	-		-	-	-	916	1940	1940	47.2%	-	-	-	0.4	1.8	0.4
11/1	Ahead Right	U	-		-	-	-	33	1940	1940	1.7%	-	-	-	0.0	0.9	0.0
12/1	Ahead	U	-		-	-	-	384	1940	1940	19.8%	-	-	-	0.1	1.2	0.1
12/2	Ahead Right	U	-		-	-	-	606	1940	1940	31.2%	-	-	-	0.2	1.3	0.2
13/1	A21 west sig approach Ahead	U	A		1	103	-	601	2075	1798	33.4%	-	-	-	0.5	3.0	3.9

Basic Results Summary

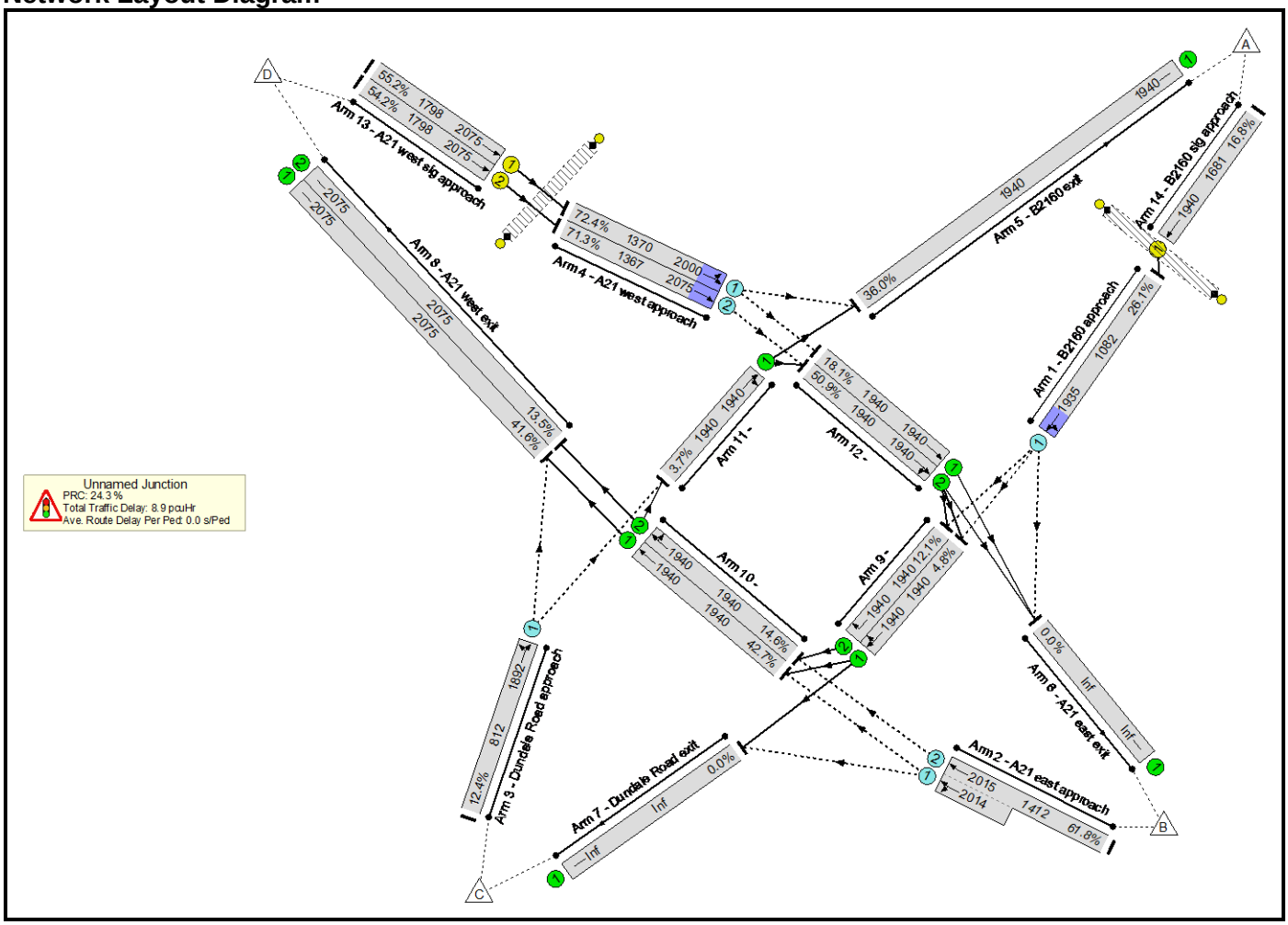
13/2	A21 west sig approach Ahead	U	A		1	103	-	600	2075	1798	33.4%	-	-	-	0.5	3.0	3.9
14/1	B2160 sig approach Ahead	U	C		1	103	-	682	1940	1681	40.6%	-	-	-	0.7	3.4	4.9
Ped Link: P1	Unnamed Ped Link	-	B		1	7	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P2	Unnamed Ped Link	-	D		1	7	-	0	-	0	0.0%	-	-	-	-	-	-

C1	Stream: 1 PRC for Signalled Lanes (%):	169.3	Total Delay for Signalled Lanes (pcuHr):	1.00	Cycle Time (s):	120
C1	Stream: 2 PRC for Signalled Lanes (%):	121.9	Total Delay for Signalled Lanes (pcuHr):	0.65	Cycle Time (s):	120
	PRC Over All Lanes (%):	1.9	Total Delay Over All Lanes(pcuHr):	10.10		

Basic Results Summary

Scenario 2: 'PM LP MS' (FG2: 'PM', Plan 2: 'Network Control Plan 2')

Network Layout Diagram



Basic Results Summary

Network Results

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**72.4%**	**4095**	**0**	**0**	**8.9**	**-**	**-**
Unnamed Junction	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**72.4%**	**4095**	**0**	**0**	**8.9**	**-**	**-**
1/1	B2160 approach Left Ahead	O	-		-	-	-	282	1935	1082	26.1%	282	0	0	0.2	2.2	0.2
2/2+2/1	A21 east approach Left Ahead	O	-		-	-	-	873	2015:2014	1412	61.8%	1746	0	0	0.8	3.3	0.8
3/1	Dundale Road approach Left Ahead	O	-		-	-	-	101	1892	812	12.4%	101	0	0	0.1	2.5	0.1
4/1	A21 west approach Left Ahead	O	-		-	-	-	992	2000	1370	72.4%	992	0	0	1.8	6.4	12.4
4/2	A21 west approach Ahead	O	-		-	-	-	974	2075	1367	71.3%	974	0	0	1.7	6.1	11.6
5/1	B2160 exit	U	-		-	-	-	699	1940	1940	36.0%	-	-	-	0.3	1.4	0.3
8/1	A21 west exit	U	-		-	-	-	863	2075	2075	41.6%	-	-	-	0.4	1.5	0.4
8/2	A21 west exit	U	-		-	-	-	280	2075	2075	13.5%	-	-	-	0.1	1.0	0.1
9/1	Ahead Right	U	-		-	-	-	93	1940	1940	4.8%	-	-	-	0.0	1.0	0.0
9/2	Right	U	-		-	-	-	234	1940	1940	12.1%	-	-	-	0.1	1.1	0.1
10/1	Ahead	U	-		-	-	-	829	1940	1940	42.7%	-	-	-	0.4	1.6	0.4
10/2	Ahead Right	U	-		-	-	-	284	1940	1940	14.6%	-	-	-	0.1	1.1	0.1
11/1	Ahead Right	U	-		-	-	-	71	1940	1940	3.7%	-	-	-	0.0	1.0	0.0
12/1	Ahead	U	-		-	-	-	351	1940	1940	18.1%	-	-	-	0.1	1.1	0.1
12/2	Ahead Right	U	-		-	-	-	987	1940	1940	50.9%	-	-	-	0.5	1.9	0.5
13/1	A21 west sig approach Ahead	U	A		1	103	-	992	2075	1798	55.2%	-	-	-	1.2	4.3	8.9

Basic Results Summary

13/2	A21 west sig approach Ahead	U	A		1	103	-	974	2075	1798	54.2%	-	-	-	1.1	4.2	8.7
14/1	B2160 sig approach Ahead	U	C		1	103	-	282	1940	1681	16.8%	-	-	-	0.2	2.5	1.5
Ped Link: P1	Unnamed Ped Link	-	B		1	7	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P2	Unnamed Ped Link	-	D		1	7	-	0	-	0	0.0%	-	-	-	-	-	-

C1	Stream: 1 PRC for Signalled Lanes (%):	63.2	Total Delay for Signalled Lanes (pcuHr):	2.31	Cycle Time (s): 120
C1	Stream: 2 PRC for Signalled Lanes (%):	436.6	Total Delay for Signalled Lanes (pcuHr):	0.20	Cycle Time (s): 120
	PRC Over All Lanes (%):	24.3	Total Delay Over All Lanes(pcuHr):	8.89	

Appendix B- Policy Approach to Sustainable & Active Travel

There are a small number of junctions where junction mitigation measures are not proposed or appropriate. These include:

- A26/Major Yorks Road (Royal Tunbridge Wells town centre)
- A26/Yew Tree Road (Southborough)
- A26 Tonbridge town centre (Tonbridge)

However, the Submission Local Plan (SLP) and the supporting evidence base provides a clear indication of the strong approach that the Council and its partners will take to delivering active and sustainable travel measures that will provide mitigation for the proposed growth.

At Policy STR6, the SLP sets out a clear hierarchy for transport in the borough, stating that the Council will:

Provide an integrated and comprehensive approach to transport provision, which offers choice and prioritises (a) active travel and then (b) public transport (rail, bus, car club, car share, and taxi), as an alternative means of transport to the private car whilst ensuring that (c) there are necessary improvements to the existing highway network and infrastructure to mitigate and address the impact of development to an acceptable degree and ensure highway safety. This will include working with partners at both the strategic and local levels

The policy goes on to set out the approach to Active Travel and Public Transport as follows:

Active travel (walking and cycling, and emerging electrical personal vehicles) will be prioritised through:

1. The creation of Low Traffic Neighbourhoods in the Main Urban Area (Royal Tunbridge Wells and Southborough) and surrounds (Bidborough, Langton Green, and Rusthall), with enhanced legible and safe cycling, pedestrian, and electrical personal vehicles routes delivered in line with the Council's Local Cycling and Walking Infrastructure Plan. Such routes will also be provided in other settlements, including through the use of a Local Cycling and Walking Infrastructure Plan in Hawkhurst;

2. The development and delivery of the strategic sites (Paddock Wood and east Capel, and Tudeley Village) proposed in this Local Plan will have integrated active travel as a fundamental element to their layout and design, so that settlements are easy to navigate on foot or by bike, both in new development and through existing areas of settlements to access their centres and services;

3. The provision of inter-settlement walking, cycling, electrical personal vehicle, and non-motorised user routes into the centres or key destinations within settlements, including through enhancing routes such as Public Rights of Way (including footpaths, bridleways, and byways) for users of non-motorised transport. This will include links to destinations outside the borough, including Tonbridge;

4. The provision of improved cycle parking and e-bike charging points and bike share opportunities.

b) Public transport

The Council will work with partners to maximise use of public transport (rail, bus, car club, car share, and taxi), as an alternative means of transport to the private car by:

1. Establishing rapid bus/transport links, including from Paddock Wood to Royal Tunbridge Wells, Paddock Wood to Tonbridge (via Tudeley Village), and Royal Tunbridge Wells to Tonbridge, and ensuring that the design of these strategic sites provides for attractive bus services with convenient access to the highway network;

2. Working with Network Rail and the train operating company to provide station infrastructure improvements where necessary, and working strategically to retain and improve the rail network by increasing the attractiveness of travelling by rail, including to multiple destinations;

3. Working with Kent County Council and bus operators to retain and enhance existing bus services and infrastructure, as well as exploring options for innovation vehicle types and in demand responsive services;

4. Requiring robust travel plans for relevant developments (see Policy TP 1: Transport Assessments/Statements and Travel Plans) to maximise opportunities for car sharing and mini-bus/shuttle bus use, opportunities for employers to stagger arrival and departure times to places of employment to avoid peak times, and residential developers to provide facilities for home or co-working;

5. Supporting the expansion of car clubs (which allow the booking/use of vehicles kept on publicly accessible land by individuals for a number of hours at a time) and opportunities for car sharing.

In addition, the Council recognises the climate emergency and Policy STR 7 sets out a response to this, again with reference to the need to secure the maximum possible journeys by active and sustainable transport.

The Strategy for Royal Tunbridge Wells (Policy STR/RTW 1) also sets out the clear intention to deliver improvements that will facilitate active travel, particularly for shorter journeys.

8. Support active travel by delivering improvements to the local pedestrian and cycling network as set out in the Local Cycling and Walking Infrastructure Plan, including Low Traffic Neighbourhoods and additional cycle parking in key locations. This will include through the provision of contributions;

9. Support improvements to the local bus network and infrastructure;

10. Deliver measures to reduce congestion on the radial routes into the town, including the A26 and A264, while prioritising active travel. This includes the provision of a new roundabout at the junction of Halls Hole Road, Pembury Road and Blackhurst Lane;

11. Plan for the expansion of electric vehicle charging points and car club;

Work that is already underway on preparing a Town Centre Plan for Royal Tunbridge Wells, will provide further detail on the delivery of improved infrastructure for active travel in the town centre.

Supporting Documents

The policies highlighted above are supported by the Local Cycling & Walking Infrastructure Plan and other ongoing evidence base work to provide confidence that improvements to bus services can be made.

Local Cycling & Walking Infrastructure Plan (LCWIP)

Tunbridge Wells Borough Council was part of the DfT Local Cycling and Walking Infrastructure Plan (LCWIP) Pilot in 2019 and successfully prepared a Phase 1 plan focused on cycling and walking routes into the centre of Royal Tunbridge Wells from the surrounding residential areas. Following this, in

2020, the Council commissioned the preparation of a Phase 2 LCWIP (Phil Jones Associates) which also included an assessment of the potential for, and prioritisation of, Low Traffic Neighbourhoods in urban areas of the borough as well as an assessment of a number of inter-urban routes. The development of the LCWIP cycling and walking routes and the LTN assessments together has ensured that these two aspects of planning for active travel are fully integrated for the borough.

In their LCWIP report, PJA states that *'The objective of this study is to develop a comprehensive strategy for active travel encompassing both the LCWIP and LTN approaches. The two approaches are inherently compatible and mutually beneficial however strategies are not often developed in tandem. Combining the two approaches through this project will create a framework for the delivery of measures that cover both strategic walking and cycling infrastructure through the LCWIP and developing neighbourhood-led solutions through the LTN. Developing the strategies concurrently will also enable TWBC to develop a programme that fuses the approaches, for example LCWIP cycle routes could be aligned through proposed Low Traffic Neighbourhoods to enhance cycle connectivity to residential areas whilst also providing a strategic onward route to the town centre. (LCWIP Phase 2 p23).*

The LCWP proposes improvements to key inter-urban routes between:

1. Paddock Wood – Tudeley – Tonbridge
2. Tonbridge – Royal Tunbridge Wells (via the A26)
3. Royal Tunbridge Wells – Paddock Wood

An initial design for improvements along the A26 between Royal Tunbridge Wells and Tonbridge town centre has been prepared by Phil Jones Associates. The intention of the scheme would be to facilitate significant modal shift from private car to active travel and use of public transport (the proposals would support access to the local bus network also). Scheme plans are shown in Appendix H of the LCWIP Phase 2 Report.

In addition, a network of low traffic neighbourhoods in the urban areas of the borough, particularly in Royal Tunbridge Wells. This network would again support the creation of a sustainable transport corridor on the A26 by reducing options for rat-running on the roads adjacent to the corridor and instead creating streets for people that encourage active travel as the best option for short journeys in particular.

All the schemes within the LCWIP evidence base documents are included within the Transport Assessment and the Infrastructure Delivery Plan.

Over recent years, Tunbridge Wells Borough Council has worked closely with Kent County Council as its Highway Authority and the two authorities have recently delivered successful projects to support active travel including:

- Public Realm Phase 2 improvements in RTW town centre
- 21st Century Way Cycle route between the RTW town centre and North Farm Key Employment Area
- 20mph schemes in Royal Tunbridge Wells town centre and in a number of residential areas of the town
- High Street, Royal Tunbridge Wells Emergency Active Travel Scheme

TWBC has already submitted a number of schemes to KCC to be included in bids to the DfT's Active Travel Fund (Rounds 1 and 2). In 2021 TWBC also submitted an Expression of Interest in being part of the DfT's Mini-Holland pilot. In addition, TWBC (and Tonbridge & Malling BC) has recently been recruited as part of Active Travel England's Development Management pilot and officers from KCC and TWBC met with ATE on 23 March to discuss this initiative.

Tunbridge Wells Borough Council has also been working in partnership with Tonbridge & Malling Borough Council on cross-boundary issues for active travel and the officers from the two councils support each other in seeking to deliver positive outcomes, in partnership with KCC.

Improved Bus Services

The Transport Assessment and the IDP set out public transport mitigations that will be required to deliver the growth set out in the Local Plan. Building on this high-level work already completed, TWBC in partnership with KCC has commissioned work to identify opportunities for improved (fast and frequent) bus services in the borough focusing particularly on routes between:

- Paddock Wood – proposed Tudeley Garden Village – Tonbridge town centre (route currently served by the Autocar 205, part-supported by KCC)
- Royal Tunbridge Wells town centre and Paddock Wood via the A264 (route currently served by the Arriva 6, a commercial service)
- Royal Tunbridge Wells town centre and Tonbridge town centre via the A26 (currently served by various operators and routes including Arriva 7, 77, 402 as well as school services)

With regard to these routes, the work will ascertain options for improvements to the existing network, including a consideration of:

- Journey time improvements via:
    - New routing
    - Prioritisation on existing routes via bus lanes and/or signals
- Potential for increased service frequencies and modal shift (with reference to demand from new development at strategic sites)
- Improved bus waiting facilities, for example stops and real time information for passengers
- Integration with other modes particularly rail and bike (and walking)
- Costing for proposed infrastructure and service improvements
- Overview of financial viability and potential ticketing strategies for services
- Consideration of relationship of proposed options with the existing network

Work has already commenced and use is being made of the public transport module of the Kent-wide transport model.

TWBC has a long history of working closely with the Public Transport Team at KCC and also with local bus operators to facilitate improvements to the network. TWBC has a Public Transport Forum which meets regularly, has worked with KCC and Arriva as part of a Quality Bus Partnership and also arranges additional meetings with bus operators to discuss any major new developments and/or highway schemes (e.g. Public Realm improvements in Royal Tunbridge Wells). TWBC has fed into the recent work by KCC to develop their Bus Service Improvement Plan and is seeking to play an active role as part of the West Kent Enhanced Partnership. This on-going partnership working puts the Council in a good position to deliver high quality bus service improvements in line with policies in the SLP.