Member of iPRT Group

itransport PLANNING

Creative Minds, *Intelligent Thinking*

*i*clarification note

Proposed 92 Family Homes

Land at Alexandra Hospital

Woodrow Drive

Redditch

Creative Minds, *Intelligent Thinking*

EXECUTIVE SUMMARY

The TA Analysis of the 92 family homes is robust in that:

- It is based on the Government's and industry standard software (Arcady, Picady, LinSig), database analysis (Census Data, TRICS and TEMPro) and methodology.
- The turning counts used are robust:
    - The 2015 flows were surveyed on Thursday, 2nd July 2015 between 07:30 and 09:30 to obtain the AM peak hour and 16:30 – 18:30 for the PM peak hour. These are known as Base Flows.
    - The TA then used TEMPro, a government produced database which takes into consideration all the committed and forthcoming development including growth in population and employment (to name a few) to growth the Base Flows to 2026. This is known as Future Year.
    - The Committed Development were then added to the 2026 Future Year which in effect doubles the Committed Development Flows as they are already accounted for in TEMPro.
    - The proposed development (i.e. proposed residential development) flows were then added to the 2021 Future Year flows + the committed development flows.
    - Based on a July 2021 survey at the Quinneys Lane / Woodrow Dr junction, the 2021 base flows used in the residential development TA were in **fact substantially higher than the actual flows counted in 2021 (16th July)**. And
    - The 2021 Census Data provides evidence that a substantial percentage of people are working from home which clearly supports the findings of the 2021 survey.
- The Applicant is required to assess the development impact and where necessary, mitigate it to ensure that the cumulative residual impact is not severe (July 2021 NPPF, para 111). As such, **regardless** of what the Base flows are, what is material is determining the **IMPACT** of the development proposals which in this specific case, 31 and 34 movements (in + out) in the AM and PM peak hours respectively, one every 2 minutes which is negligible. **This was confirmed by modelling of the junctions which evidenced that the development impact is negligible and more importantly, that the junctions' improvement / mitigation proposals already in place will result in all junctions working well within their operational capacity.**
- **Therefore, The development impact is mitigated and a financial contribution of £46k is offered to assist in bringing forward committed infrastructure improvements.**

1.0 INTRODUCTION

1.1 iTransport Planning, a specialist member of iPRT Group of companies, provided a Transport Assessment Analysis (Analysis) for the proposed development of up to 92 family homes (outline application) on the grounds of Alexandra Hospital, Quinneys Lane, Redditch, B98 7UB, google maps link https://bit.ly/2FtAHVE

1.2 It is understood that at the April 2023 Planning Committee meeting, a clarification was requested relating to the traffic surveys and analysis methodology and this will be the focus of this Clarification Note.

2.0 TECHNICAL RESOURCES

2.1 The TA Analysis was based on the following industry recognised standard software and resources as follows:

- **TEMPro**

  The TEMPro (Trip End Model Presentation Program) is the GOVERNMENT's software that allows users to view the NTEM dataset and provides:

  - *forecasts of trip ends*
  - *associated documentation.*

  Analysis of the NTEM data may can be made by:

  - *geographical area, i.e. area specific based on the LOCAL PLAN and COMMITTED developments*
  - transport mode
  - the travel time of day
  - the purpose of journey
  - years of interest (from 2011 to 2051)
  - the type of trips

  The National Trip End Model (NTEM) model forecasts the growth in trip origin-destinations (or productions-attractions) up to 2051 for use in transport modelling.

- **TRICS**

  TRICS is the industry standard system of trip generation analysis for the UK and Ireland. First launched in 1989, it is an integral and essential part of the Transport Assessment process, and through continuous investment and development it has expanded into a comprehensive database of traffic and multi-modal transport surveys, covering a wide range of development types.

  The system allows its users to establish potential levels of trip generation for their development scenarios using a series of database filtering processes, and it is widely used by both transport

planning consultants and local authorities (the latter of which use TRICS to audit Transport Assessments).

The database contains massive amounts of data (sites) and as part of the analysis process, any sites surveyed during COVID were discounted (manually removed) as detailed in the TRICS sheets, List of Sites, in Appendix 5 of the TA.

- **Junction Modelling Software**

Junctions 9 (from TRL) The industry standard modelling and analysis of roundabouts, priority junction and signalised junctions. The software has been successfully used to design and improve thousands of junctions in the UK and throughout the world. The software customers include governments, multinational organisations, regional transport authorities and academic institutions. The **Lane Simulation tool** can be used to model junctions in a different way using a simple simulation method. This can model effects that may be difficult to model otherwise such as; unequal lane usage at roundabouts, blocking back between linked junctions, circulating lanes at roundabouts and partially signalised junctions.

LinSig (from JCT) The central idea behind LinSig is that it models traffic signal junctions in a similar way to how a real traffic signal controller actually works. This means that LinSig takes account of the features and constraints of the controlling equipment, thereby ensuring that all modelling accurately reflects how existing junctions work, and how any design proposals would operate if implemented.

3.0 COMMITTED DEVELOPMENTS

3.1 As per Best Practice and industry standard Guidance, the TA took into consideration all known committed developments and infrastructure improvements and were detailed in Chapter 3, paras 3.27 – 3.28.

4.0 IMPACT ANALYSIS

4.1 The following junctions were assessed for their operational capacity:

i. Woodrow Drive / Studley Rd roundabout;
ii. Woodrow Drive / Quinneys Lane (referenced in RDM as J57);
iii. Quinneys Lane / Site access;
iv. Woodrow Drive / Nine Days Lane priority junction; and
v. Woodrow Drive / Rough Hill Drive roundabout (referenced in RDM as J17).

4.2 As per Government Guidance and best practice, the development impact on the above junctions was assessed to 2026 as per the following scenarios:

- Assess the performance of the above junctions based on BASE counts to 2026 (known as Do Nothing scenario).
- Assess the performance of the above junctions based on BASE + COMMITTED developments to 2026 (known as Do Nothing scenario).
- Assess the performance of the above junctions based on BASE + COMMITTED + DEVELOPMENT to 2026 (known as Do Development scenario).

5.0 TURNING COUNTS

5.1 Turning counts are undertaken to provide the basic conditions under which a junction or a link is performing (i.e. after modelling, the operational capacity is obtained). Depending on the nature of the development, the days and peak hours surveyed are undertaken in line with GOVERNMENT Guidance https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/938807/tag-m1-2-data-sources-and-surveys.pdf

In this specific case, the proposals are a residential development hence, would have required a neutral day to be surveyed during the AM and PM peak hours; for clarity, a neutral day excludes weekends, holidays (as in Easter break, Christmas, bankholidays, summer holidays, etc) and the 'days' preceding / following the holiday…this is all detailed in the above guidance.

Again, in this specific case of a residential development, the peak hours are 7am – 10am and 3pm – 6pm and the busiest network hour in that period is used.

Clearly, due to COVID, all local governments had to adapt and turning counts prior to 2020 are generally still regarded as robust as in recent years, traffic flows generally remain lower than pre-COVID due to increased percentages of homeworking and the increase in fuel / energy costs.

This is best demonstrated with the Census data (Figure 5.1) which shows the massive percentage increase in homeworking (c. 14% increase) and the reduction in car use by c. 8%.

	2021	2011
Total: All usual residents aged 16 years and over ir		
Work mainly at or from home	17%	3%
Underground, metro, light rail, tram	0%	0%
Train	0%	1%
Bus, minibus or coach	7%	12%
Taxi	2%	0%
Motorcycle, scooter or moped	0%	1%
Driving a car or van	54%	62%
Passenger in a car or van	8%	7%
Bicycle	2%	1%
On foot	11%	12%
Other method of travel to work	1%	0%

Figure 5.1
2011 / 2021 Census Data Comparison

5.2 Further evidence that supports the UK wide overall **drop in traffic** is demonstrated in Figure 5.2 which shows, based on a July 2021 survey at the Quinneys Lane / Woodrow Dr junction, that the 2021 base flows used in the residential development TA were in **fact substantially higher than the actual flows counted on 16th July 2021**:

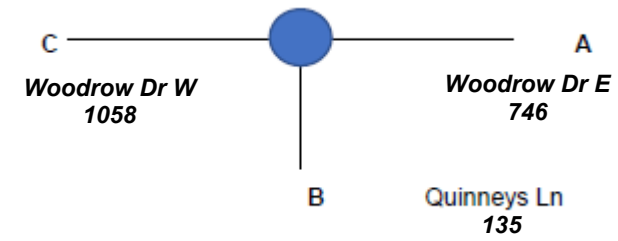
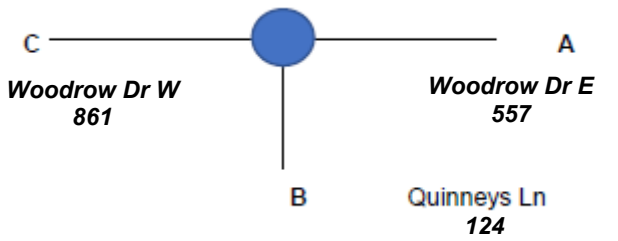
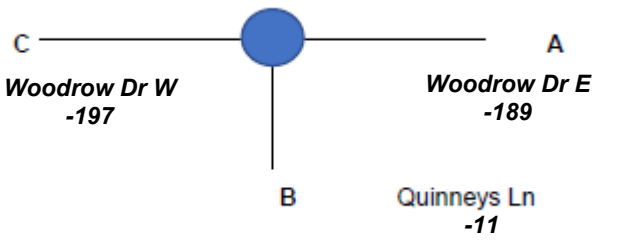
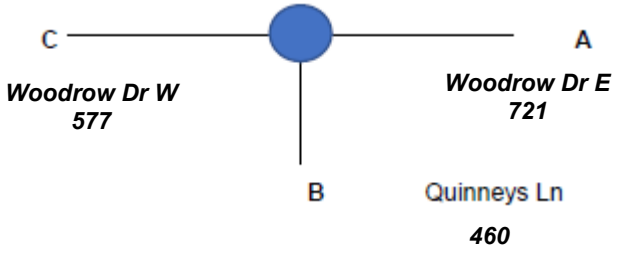
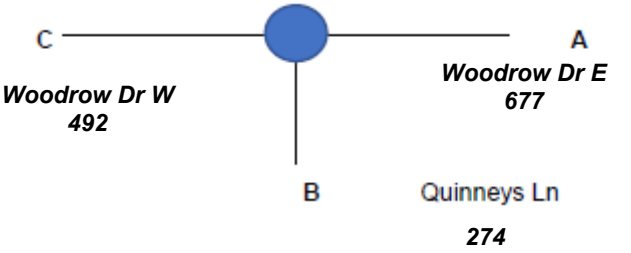
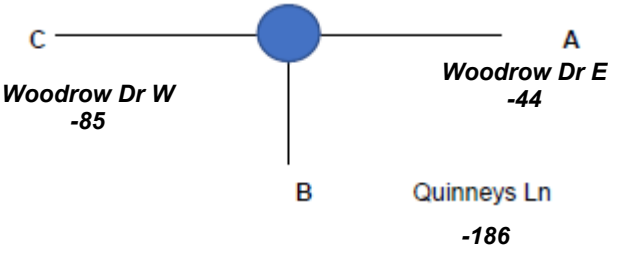
A **RESIDENTIAL** 2021 Flows Used (based on 2015 flows, growthed by applying TEMPro factors)	B **ACTUAL** 2021 Flows	C (B – A) Difference
AM Peak		
		
PM Peak		
		

Figure 5.2
Evidence of reduction in traffic flows

5.3 In this specific case, due to the committed and nearby developments, **consistency** is imperative since pro-rata financial contribution was expected.

5.4 Further, due to [at the time of TA submission] COVID conditions, undertaking turning counts was not robust hence, **in line with all consultants, government and local highways authorities' approach between 2020 and 2021**, WCC were approached as a first port of call to check the availability of data covering the referenced 5 junction; only Woodrow Dr / Quinneys Lane counts were available and accordingly used. For the remaining junctions, the previously accepted turning counts used in support of Application ref: 17/00542 were used – Appendix 7.

5.5 The above methodology should be taken in context in that:

- The use of the accepted 17/00542 flows is robust as it provides clear indication of the development impact when compared to other applications and provide equity / consistency when a pro-rata financial contribution is sought.
- The flows used in the residential TA are substantially higher than actual flows counted (Figure 5.2).
- The junctions' operational capacity assessment conclusion is to assess the development impact under the Do Development scenario previously discussed, i.e. starting from an actual 'raw' base counts, then add to it the committed developments and assess that impact and finally to add the development impact to assess and where necessary mitigate the development impact. Therefore, in this specific case, using the 17/00542 planning application counts base counts provides a robust approach and **consistency** in assessing the development impact.

6.0 MITIGATION PROPOSALS

6.1 Taking all the aforementioned into consideration, i.e. using the higher base flows at the busiest peak hour + committed developments + proposed development flows and assessing the impact in 2026, Chapter 5 of the TA provided detailed analysis of the impacts before and after mitigation. As an illustrative example, the Woodrow Dr (W) arm of Woodrow Dr / Quinneys lane roundabout will have an operational capacity (RFC) of 1.08 in 2026 under the Do Nothing scenario (base + committed) with an anticipated delay of 151.77 seconds and 58.4 queue length.

6.2 When a junction is above 1 RFC, it means the junction is not discharging vehicle, i.e. operating above capacity and any additional traffic will mathematically add to the queue length and delay, in this specific case and specific arm of the junction (i.e. Woodrow Dr (W)) the Do Development scenario in 2026 will result in an RFC of 1.09 (up from 1.08), a delay of 164.25 seconds and 63.6 queue length.

6.3 HOWEVER, with the proposed mitigation in place to which the Applicant is making c. £46k contribution, the same arm RFC will drop to 0.71 which is well within the junctions operational capacity, a delay of 6.82 seconds and a queue length of 2.4 vehicles (PCUs); this is a substantial reduction over the unmitigated Do Nothing scenario.

6.4 The above is detailed in Figures 5.4 and 5.5 of the TA and summarised as follows:

Unmitigated Junction

	AM			PM		
	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
	2026 Base					
1 - Woodrow Dr E	2.6	11.23	0.73	1.6	6.86	0.61
2 - Quinneys Lane	0.2	4.74	0.17	1.8	12.04	0.64
3 - Woodrow Dr W	40.7	112.42	1.04	1.5	8.30	0.61
	2026 Base + Committed					
1 - Woodrow Dr E	2.8	11.54	0.74	1.8	7.39	0.64
2 - Quinneys Lane	0.2	4.80	0.17	1.9	13.00	0.66
3 - Woodrow Dr W	58.4	151.77	1.08	1.7	8.74	0.63
	2026 Base + Committed + Dev					
1 - Woodrow Dr E	2.8	11.65	0.74	1.9	7.72	0.66
2 - Quinneys Lane	0.3	4.98	0.20	2.0	13.59	0.67
3 - Woodrow Dr W	63.6	164.25	1.09	1.8	9.09	0.64

Mitigated Junction

	AM			PM		
	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
	2026 Base					
1 - Woodrow Dr E	2.8	11.69	0.74	1.6	6.86	0.61
2 - Quinneys Lane	0.2	4.74	0.17	1.8	12.04	0.64
3 - Woodrow Dr W	2.1	6.18	0.68	0.6	3.43	0.39
	2026 Base + Committed					
1 - Woodrow Dr E	2.9	12.32	0.75	1.8	7.39	0.64
2 - Quinneys Lane	0.2	4.80	0.17	1.9	13.00	0.66
3 - Woodrow Dr W	2.3	6.66	0.70	0.7	3.51	0.40
	2026 Base + Committed + Dev					
1 - Woodrow Dr E	3.0	12.54	0.76	1.9	7.72	0.66
2 - Quinneys Lane	0.3	4.98	0.20	2.0	13.59	0.67
3 - Woodrow Dr W	2.4	6.82	0.71	0.7	3.56	0.41

7.0 COLLISIONS HISTORY

7.1 As per Best Practice and industry standard Guidance, the TA took into consideration the most recent 5 years incidents and collisions history based on data provided by Worcestershire County Council and detailed in Chapter 3, paras 3.29 & 3.33.

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