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# Rebuttal (Highways)

of Knowle Lane Residents Group

Nov 2023

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## FINAL VERSION

Appeal Ref: APP/R3650/W/23/3326412

Site Address: Land Centred Coordinates 505938 138328, Knowle Lane, Cranleigh

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**The headings in this document are provided purely for ease of reference and do not limit the relevance of text to the context implied by their associated heading.**

## INTRODUCTION

This rebuttal addresses claims made in the Appellant's evidence and with particular reference to the following documents:-

- CD1.5j - Appellant's Highways Proof of Evidence
- CD1.5k - Appellant's Highways Proof of Evidence – Summary
- CD2.1d - Transport Assessment, prepared by Motion
- CD2.5d - TN08, Response to Bellamy Roberts Highway & Transportation Considerations Report, dated 9th May 2023

To avoid unnecessary repetition, we will present the majority of our case in respect of Highways at the hearing.

However, there is one topic which it would be helpful to address now – that of 'Traffic Generation and Impact'.

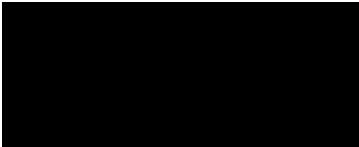
This topic is quite technical in nature and so we consider it is better aired at this stage so that all parties have ample time to consider it and hopefully, so that we might save time at the hearing.

This is a topic we would have preferred to cover in detail via our Proof of Evidence but (as previously explained) the very late disclosure of '*CD2.5d - TN08, Response to Bellamy Roberts Highway & Transportation Considerations Report, dated 9th May 2023*' seriously undermined our ability to prepare fully detailed evidence before the deadline for its submission. NB. Even at the time of writing, this document is still missing from the LPA's Planning Portal.

Regardless of the circumstances, we have given prior notice of our intent to examine this topic at the hearing and the rebuttal issued here is entirely relevant to the Appellant's Proof of Evidence.

Based on the information available to me when preparing this document, I confirm that it is accurate and that where conclusions are drawn, they are balanced and reasonable.

Signed:



Date: 07 Nov 2023

## SUMMARY

In CD1.5j (2.9 – 2.14), the Appellant discusses traffic-generation and its impact on the local highway network.

Many of the conclusions they have reached depend heavily on their own projections of the likely increase in traffic (2022-2028) and which they estimate to be around 3%.

The sources of increased traffic are attributable to:-

- the development itself
- external factors ('the background')

We will leave our discussion in respect of increases attributable to the development itself until the hearing.

In this document, we will focus on those 'external factors' and demonstrate that they have been profoundly underestimated by the Appellant.

The direct consequence of this error is that the Appellant's prediction of future traffic-growth is massively understated.

Furthermore, the Appellant has not considered the focussed impact of this future traffic-growth upon Knowle Lane and Cranleigh.

We will discuss the significance of this at the hearing; this document serves mostly to explain the source of the error.

## APPELLANT'S CLAIMS

In CD1.5j, the Appellant states:-

2.12 In the Statement of Case, the Residents Group alleges that the traffic modelling fails to take account of future sources of increasing traffic volumes since the original traffic survey was carried out in November 2022 or traffic associated with other new developments in the area. This is not the case. As is standard practice, the traffic assessment considers a future year 5 years after the submission of the planning application, in this case 2028. As set out in Section 6 of the Transport Assessment (CD2/1d), traffic growth has been accounted for with reference to TEMPro (Trip End Model Presentation Program), the industry standard tool for estimating traffic growth, and adjusted with reference to the National Transport Model (NTM) dataset with the baseline traffic flows increased accordingly.

The relevant section of CD2/1d states:-

6.2 Traffic growth figures have been obtained from TEMPro version 7.2c for the Waverley 013 middle layer super output area (MSOA) and adjusted with reference to the National Transport Model (NTM) RTF 2018 Scenario 1 dataset. The TEMPro growth factors for the 2022 to 2028 weekday morning and evening peak periods are provided within Table 6.1 below.

Time Period	Weekday Morning Growth Factor	Weekday Evening Growth Factor
2022 – 2028	1.0313	1.0314

Table 6.1: TEMPro Growth Factors

The Appellant has therefore claimed that:-

- Their modelling does 'take account of future sources of increasing traffic volumes'
- Their modelling does 'take account of ... traffic associated with other new developments'
- They estimate the increase in traffic between 2022 and 2028 to be around 3.1%

Furthermore, the Appellant places complete reliance on the results obtained from its traffic-modelling software as the basis for many of its subsequent conclusions.

## INTRODUCING TEMPRO

### **Baseline Data and Zones**

In calculating traffic-growth, the Appellant used the “TEMPro” software (freely available online and widely used in the industry).

To summarise its operation, TEMPro takes baseline data, applies various assumptions of what might have happened in the past and what might happen in future and then outputs its predictions.

Like any modelling software, it can only produce results as good as its baseline data and the assumptions supplied to it.

The baseline data for TEMPro is from the 2011 Census and this is summarised at a zonal level.

A ‘zone’ is the finest level of detail available and typically encompasses part of a town, a larger village or the infill area surrounding these. As such, TEMPro cannot accurately model effects at a finer level of detail (for example, a specific road or junction).

Indeed, specific warnings are provided that TEMPro should not be relied upon for localised assessments without suitable corrections having been made [APP-T6]. The importance of this is highlighted by the fact its estimates of traffic on rural roads for Cranleigh are reduced because a proportion of vehicles are assumed to be travelling on the motorway network (although of course, there are no motorways in or near to Cranleigh...)

### **Projecting into the Future**

In an attempt to keep its projections aligned with reality, updates are applied from two sources – NTEM and NTM. Collectively, these are forecasts of growth attributable to a variety of factors such as population, employment, car ownership, allocation by road-type, etc.

These updates are not necessarily frequent or particularly recent. Neither are they claimed to be of high accuracy.

For example, the NTM dataset used by the Appellant’s TEMPro v7.2c would almost certainly have included the following update for Waverley (which dates from 2011/12) [CD7.5e p.105]. We have been unable to establish if a more recent version is available:-

Waverley	South East	Annual Monitoring Report	2011/2012	2026
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Atkins Guidance Note | Version 4 | February 2017 | 5138121

105

The Appellant also confirmed that they used the ‘*National Transport Model (NTM) RTF 2018 Scenario 1 dataset*’.

So at this stage, the software used by the Appellant would appear to have been using ‘local’ data last updated in 2011/12 and projections last updated in 2018 (before UK left the EU and long before COVID).

However (and as we will show) we don't consider this to be the main cause of error. Whilst these 'fudge factors' are relevant, the underlying data is also of great importance.

Before progressing, it is important to note that the NTM dataset has no detailed knowledge of local factors (such as new housing-developments – either recently built or approved to be built in future).

There is no 'real-time' update feature (or similar) as one might have expected. Specifically, TEMPro's only way of adjusting figures for the future is to apply the regional 'guesses' provided via the updates (however outdated those might be).

So whilst TEMPro might be in common use, it is by no means a fool-proof or infallible tool; at best, it can only provide semi-educated guesses as to what might happen (and even then, only at a regional level).

As to why it is still in widespread use, we suspect that in most cases, the errors it might produce are small enough to be 'absorbed' by the highway network or in all probability, that nobody ever comes back to validate its predictions after the event?

Either way, its use in the context of Knowle Lane (and without suitable corrections) is entirely inappropriate.

As is shown in this rebuttal, if the Growth Factors submitted by the Appellant are to be accepted then the following must also be held to be true:-

- The number of new households in Cranleigh will not exceed 209 whilst 552 new houses are to be built there in the same period.
- The population of Cranleigh will either *decrease* by 25 or increase to a maximum of 284 people whilst 552 new houses are to be built there in the same period.
- The number of new households in the area neighbouring Cranleigh will not exceed 157 whilst 727 new houses are to be built there in the same period.
- The population of the area neighbouring Cranleigh will increase by no more than 243 people whilst 727 new houses are to be built there in the same period.
- Collectively, the 1,279 houses approved for development (on or within 2 miles of Knowle Lane) will have no impact whatsoever on volumes of traffic on Knowle Lane or its junction with the High Street.

## ALTERNATIVE TEMPRO RESULTS

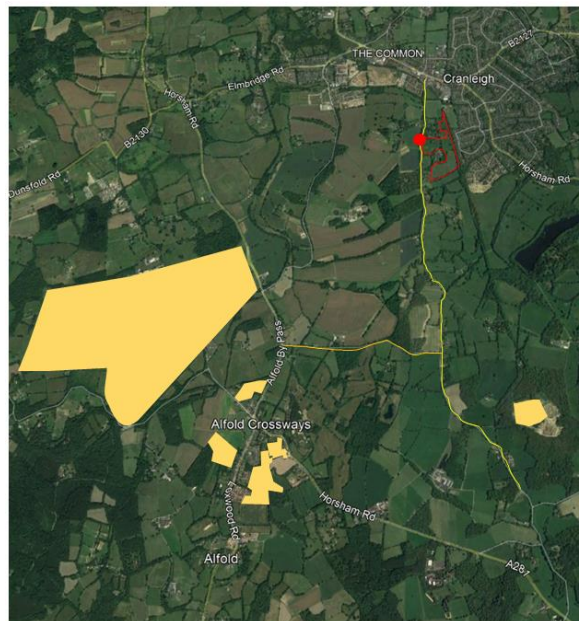
Having struggled to comprehend the 3% growth figure claimed by the Appellant, we downloaded TEMPro v8.1 to see if we could spot an 'obvious' issue.

We included two 'zones':-

- Waverley 013 (Cranleigh itself)
- Waverley 015 (the area wrapped around Cranleigh)

The justification for including "Waverley 015" is that almost all of the housing approved for development by 2028 in that zone is located on its border with Cranleigh's zone (and very close to Knowle Lane).

Cranleigh is the nearest 'town' to these developments and so Knowle Lane (via Wildwood Lane) will be a desirable route for new traffic they generate.



*Approved Major Developments south of Cranleigh [CD1.6e.iv]*

Given the dependency of TEMPro on the underlying 'prediction' model (NTEM) we used four 'scenarios' to ensure we didn't inadvertently bias our results in one direction or the other:-

- Core
- High - high rates of population, employment, and GDP growth
- Low - low rates of population, employment, and GDP growth
- Regional - ("Levelling Up") higher relative growth outside London, SE and E. England.

We first ran each of these scenarios without any alterations to the underlying data (results in *Appendix A*).

The results were fairly consistent across the scenarios with projections of between 2.3% and 3.9%.

These results align broadly with the Appellant's claimed levels of growth (3.1%).



Perplexed, we then ‘dug a little deeper’ into TEMPro and discovered that its starting-point involves two sets of values - the **number of households** and the number of jobs it has estimated for the relevant years (2022 and 2028 in this case).

TEMPro then goes on to derive population and employment figures from those (already derived) figures before applying its projections (c/o NTM and NTEM) to produce its results.

When we inspected these underlying figures, we immediately spotted a large discrepancy between what TEMPro had ‘assumed’ would happen by 2028 as opposed to the known future.

For example:-

- 50% of scenarios predicted the population of Cranleigh will fall by 2028 (by 4 or 25 people)
- Even the “High” model only projected an increase of 284 for Cranleigh’s population
- There will only be 130-366 new households in the entire area for the period 2022-28

This cannot possibly be reconciled against the fact that 1,279 new houses are already approved for development in these areas 2023-28 (552 of which will be in Cranleigh and the remainder within 2 miles of Knowle Lane). [CD1.6e.ii]

(A further 2,226 houses will follow as the result of the Dunsfold Park development but we have ignored those in this discussion to stay within the somewhat artificial constraint of 2028).

So finally, we understood the source of the error – a set of regional assumptions have been applied to data that is itself estimated whilst highly relevant, local factors were overlooked.

Fortunately, TEMPro allows for the use of “Alternative Assumptions” in which you can manually override its prediction of future households/jobs with your own figures.

Consequently, we allocated the known number of new houses (and linearly extrapolated numbers of jobs) into TEMPro (*Appendix B*). (We note that households and houses are subtly different but for our purposes and given the nature of the new builds, we feel that is an academic consideration).

With this more accurate data fed into the model (to reflect the known situation) then the traffic-growth figures increase uniformly to an average of 19.5% (*Appendix C*).

To calibrate that increase, 19.5% represents a further 1,987 car journeys in the AM peak (a three hour period so around 662 per hour).

It must be noted that the 1,279 developments are close to Knowle Lane (a few of them are actually on Knowle Lane) so that the impact is likely to be focussed acutely on Knowle Lane and Cranleigh (vs being diluted across the whole of the two areas).

Therefore, this 19.5% increase across both zones will translate into a much higher percentage increase for Knowle Lane and the immediate area.

According to the Appellant’s traffic-survey, around 302 vehicles per hour were using the junction at PM peak in 2022. If just one tenth of the additional car journeys identified above use this route then that will represent an increase of 22% at the junction.

This is approaching the scale of increase that we locals suspected and now (with suitable inputs) TEMPro supports it. The PICADY analyses previously submitted by various parties demonstrate that levels far below this would lead to extreme congestion at Knowle Lane and Cranleigh High Street.

## APPENDIX A: BASELINE TEMPRO RESULTS

The 'raw' (uncorrected) outputs from TEMPro.

BASELINE	CORE			LOW			HIGH			REGIONAL			STATS		
	Core 013	Core 015	Totals	Low 013	Low 015	Totals	High 013	High 015	Totals	Reg 013	Reg 015	Totals	Min	Avg	Max
2022 PP	11105	8497	19602	11076	8474	19550	11172	8544	19716	11078	8476	19554	19550	19606	19716
2022 HH	4618	3419	8037	4607	3410	8017	4648	3441	8089	4606	3410	8016	8016	8040	8089
2022 Jobs	5172	4205	9377	5040	4097	9137	5219	4244	9463	5159	4194	9353	9137	9333	9463
2022 Workers	5238	3806	9044	5108	3710	8818	5282	3838	9120	5227	3797	9024	8818	9002	9120
2028 PP	11188	8593	19781	11051	8490	19541	11456	8787	20243	11074	8507	19581	19541	19787	20243
2028 HH	4737	3509	8246	4681	3466	8147	4857	3598	8455	4688	3472	8160	8147	8252	8455
2028 Jobs	5337	4321	9658	5276	4271	9547	5404	4375	9779	5281	4275	9556	9547	9635	9779
2028 Workers	5344	3894	9238	5283	3849	9132	5408	3940	9348	5289	3852	9141	9132	9215	9348
Change PP	83	96	179	-25	16	-9	284	243	527	-4	31	27	-9	181	527
Change HH	119	90	209	74	56	130	209	157	366	82	62	144	130	212	366
Change Jobs	165	116	281	236	174	410	185	131	316	122	81	203	203	303	410
Change Workers	106	88	194	175	139	314	126	102	228	62	55	117	117	213	314
2022 AM peak Origin	2952	2404	5356	2888	2360	5248	2987	2430	5417	2945	2399	5344	5248	5341	5417
2022 AM peak Destination	2575	2264	4839	2519	2213	4732	2612	2296	4908	2569	2258	4827	4732	4827	4908
2022 PM peak Origin	2764	2320	5084	2713	2276	4989	2799	2349	5148	2757	2314	5071	4989	5073	5148
2022 PM peak Destination	3042	2333	5375	2984	2295	5279	3076	2356	5432	3035	2328	5363	5279	5362	5432
2028 AM peak Origin	3041	2468	5509	2994	2435	5429	3099	2513	5612	3011	2443	5454	5429	5501	5612
2028 AM peak Destination	2672	2333	5005	2624	2292	4916	2730	2384	5114	2645	2310	4955	4916	4998	5114
2028 PM peak Origin	2861	2390	5251	2815	2353	5168	2920	2439	5359	2832	2366	5198	5168	5244	5359
2028 PM peak Destination	3132	2397	5529	3087	2367	5454	3192	2441	5633	3101	2373	5474	5454	5523	5633
2022 AM total	5527	4668	10195	5407	4573	9980	5599	4726	10325	5514	4657	10171	9980	10168	10325
2022 PM total	5806	4653	10459	5697	4571	10268	5875	4705	10580	5792	4642	10434	10268	10435	10580
2028 AM total	5713	4801	10514	5618	4727	10345	5829	4897	10726	5656	4753	10409	10345	10499	10726
2028 PM total	5993	4787	10780	5902	4720	10622	6112	4880	10992	5933	4739	10672	10622	10767	10992
AM growth	186	133	319	211	154	365	230	171	401	142	96	238	238	331	401
PM growth	187	134	321	205	149	354	237	175	412	141	97	238	238	331	412
AM growth %	0.034	0.028	0.031	0.039	0.034	0.037	0.041	0.036	0.039	0.026	0.021	0.023	0.023	0.033	0.039
PM growth %	0.032	0.029	0.031	0.036	0.033	0.034	0.040	0.037	0.039	0.024	0.021	0.023	0.023	0.032	0.039

## APPENDIX B: TEMPRO CORRECTIONS

The corrections subsequently applied in Appendix C (and derived from *CD1.6e.ii*).

CORRECTIONS	CORE			LOW			HIGH			REGIONAL			STATS		
	Core 013	Core 015	Totals	Low 013	Low 015	Totals	High 013	High 015	Totals	Reg 013	Reg 015	Totals	Min	Avg	Max
2028 PP	1304	1780	3084	1303	1781	3084	1302	1775	3077	1304	1781	3085	3077	3083	3085
2028 HH	552	727	1279	552	727	1279	552	727	1279	552	727	1279	1279	1279	1279
2028 Jobs	622	895	1517	622	896	1518	614	884	1498	622	895	1517	1498	1513	1518
2028 Workers	623	807	1429	623	807	1430	615	796	1411	623	807	1429	1411	1425	1430

## APPENDIX C: CORRECTED TEMPRO RESULTS

The results obtained by applying the corrections from Appendix B to the 'raw' results of Appendix A. (Simple addition of households at 2028 HH and extrapolated jobs at 2028 Jobs).

CORRECTED	CORE			LOW			HIGH			REGIONAL			STATS		
	Core 013	Core 015	Totals	Low 013	Low 015	Totals	High 013	High 015	Totals	Reg 013	Reg 015	Totals	Min	Avg	Max
2022 PP	11105	8497	19602	11076	8474	19550	11172	8544	19716	11078	8476	19554	19550	19606	19716
2022 HH	4618	3419	8037	4607	3410	8017	4648	3441	8089	4606	3410	8016	8016	8040	8089
2022 Jobs	5172	4205	9377	5040	4097	9137	5219	4244	9463	5159	4194	9353	9137	9333	9463
2022 Workers	5238	3806	9044	5108	3710	8818	5282	3838	9120	5227	3797	9024	8818	9002	9120
2028 PP	12492	10373	22865	12354	10271	22625	12758	10562	23320	12378	10288	22666	22625	22869	23320
2028 HH	5289	4236	9525	5233	4193	9426	5409	4325	9734	5240	4199	9439	9426	9531	9734
2028 Jobs	5959	5216	11175	5898	5167	11065	6018	5259	11277	5903	5170	11073	11065	11148	11277
2028 Workers	5967	4701	10667	5906	4656	10562	6023	4736	10759	5912	4659	10570	10562	10640	10759
Change PP	1387	1876	3263	1278	1797	3075	1586	2018	3604	1300	1812	3112	3075	3264	3604
Change HH	671	817	1488	626	783	1409	761	884	1645	634	789	1423	1409	1491	1645
Change Jobs	787	1011	1798	858	1070	1928	799	1015	1814	744	976	1720	1720	1815	1928
Change Workers	729	895	1623	798	946	1744	741	898	1639	685	862	1546	1546	1638	1744
2022 AM peak Origin	2952	2404	5356	2888	2360	5248	2987	2430	5417	2945	2399	5344	5248	5341	5417
2022 AM peak Destination	2575	2264	4839	2519	2213	4732	2612	2296	4908	2569	2258	4827	4732	4827	4908
2022 PM peak Origin	2764	2320	5084	2713	2276	4989	2799	2349	5148	2757	2314	5071	4989	5073	5148
2022 PM peak Destination	3042	2333	5375	2984	2295	5279	3076	2356	5432	3035	2328	5363	5279	5362	5432
2028 AM peak Origin	3395	2979	6374	3347	2945	6292	3452	3021	6473	3365	2954	6319	6292	6365	6473
2028 AM peak Destination	2983	2817	5800	2933	2772	5705	3040	2865	5905	2956	2793	5749	5705	5790	5905
2028 PM peak Origin	3194	2885	6079	3147	2846	5993	3252	2932	6184	3165	2862	6027	5993	6071	6184
2028 PM peak Destination	3497	2894	6391	3451	2863	6314	3555	2934	6489	3466	2870	6336	6314	6383	6489
2022 AM total	5527	4668	10195	5407	4573	9980	5599	4726	10325	5514	4657	10171	9980	10168	10325
2022 PM total	5806	4653	10459	5697	4571	10268	5875	4705	10580	5792	4642	10434	10268	10435	10580
2028 AM total	6378	5796	12174	6280	5717	11997	6492	5886	12378	6321	5747	12068	11997	12154	12378
2028 PM total	6691	5779	12470	6598	5709	12307	6807	5866	12673	6631	5732	12363	12307	12453	12673
AM growth	851	1128	1979	873	1144	2017	893	1160	2053	807	1090	1897	1897	1987	2053
PM growth	885	1126	2011	901	1138	2039	932	1161	2093	839	1090	1929	1929	2018	2093
AM growth %	0.154	0.242	0.194	0.161	0.250	0.202	0.159	0.245	0.199	0.146	0.234	0.187	0.187	0.195	0.202
PM growth %	0.152	0.242	0.192	0.158	0.249	0.199	0.159	0.247	0.198	0.145	0.235	0.185	0.185	0.193	0.199