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HEADLINE FINDINGS OF THE PUPIL PRODUCT RATIO SURVEY

ON BEHALF OF ROBERT HITCHINS LTD

TOWN & COUNTRY PLANNING ACT 1990 (AS AMENDED) PLANNING AND COMPULSORY PURCHASE ACT 2004

Prepared by: Neil Tiley AssocRTPI

Pegasus Group

Pegasus House | Querns Business Centre| Whitworth Road | Cirencester | Gloucestershire | GL7 1RT

T 01285 641717 | **F** 01285 642348 | **W** www.pegasusgroup.co.uk

Birmingham | Bracknell | Bristol | Cambridge | Cirencester | East Midlands | Leeds | Liverpool | London | Manchester | Newcastle | Peterborough

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1. INTRODUCTION

1.1 Gloucestershire County Council commissioned Cognisant Research to undertake a study to identify the product ratios experienced on new build developments in Gloucestershire. The resultant Pupil Product Ratio Study (PPRS) was published in 2018. In 2019, a supplementary report (the PPRS update) was prepared using the same methodology as adopted in the PPRS.

1.2 A wide range of stakeholders have raised significant concerns with the approach adopted and with the resultant product ratios of these reports. In light of this, Robert Hitchins Ltd commissioned NEMS Market Research to undertake a survey to verify the findings and address the omissions of the PPRS update. The findings of the NEMS Market Research survey are presented within this report.

2. THE NEMS MARKET RESEARCH SURVEY

Methodology

2.1 The NEMS Market Research survey has been designed to record both the average number of pupils resident in a household within a new build dwelling and the number of these that are new to local educational facilities as required by the School Capacity Survey. These are respectively referred to as the total pupil product ratio and the additional pupil product ratio.

2.2 Pegasus Group identified developments within Gloucestershire that had either achieved at least 100 completions in the years leading up to 1st April 2019 or were expected to have done so in 2019/20 according to the latest trajectories of the District Councils within Gloucestershire[1].

2.3 The current addresses within each of these sites was obtained from partners of Ordnance Survey. These were filtered to remove any obvious commercial addresses. A total of 7,430 potential residential new build properties remained. A hard copy survey was sent to each of these addresses by NEMS Market Research providing the opportunity to provide freepost returns or to complete an online survey. A total of 815 responses were received, which represents 11% of the properties surveyed[2].

2.4 The data was processed by NEMS Market Research, a UK-based market research company specialising in such research. A small number of responses were imputed where the respondent had answered questions positively but not recorded the corresponding negative responses. A total of 5 respondents did not provide sufficient information to be able to impute the returns and accordingly these are excluded from the following findings. However, all of the remaining responses are

[1] Comprising GCHQ, Land West of Farm Lane, Land at Starvehall Farm and Travis Perkins in and around Cheltenham Town, Kingshill at Cirencester, Land at the former Aggregates Industries Site at South Cerney, Land off Todenham Road at Moreton-in-Marsh, Land parcel south of Quercus Road at Tetbury, Roman Way at Bourton-on-the-Water, Land parcel off Broad Marston Road at Mickleton, Lydney East, Owen Farm at Coleford, Former Bishops College, Former Kwik Save, Monk Meadow, Norville Factory Site, Former St Gobain/Wellman Graham Site, Kingsway, Coopers Edge, Hunts Grove, Land East of Tewkesbury Road and North of Longford Lane, Plot 5030 at Gloucester Business Park and Former Gloscat Buildings in and around Gloucester City, Land West of Stonehouse, Littlecombe at Dursley, Land rear of Canonbury Street at Berkeley, Chestnut Park at Kingswood, Land South of Leonard Stanley Primary School, Parcel 7561 at Gotherington, Part Parcel 3400 at Walton Cardiff, Cleevelands and Homelands at Bishop's Cleeve.

[2] As it is likely that a proportion of the addresses were either in commercial use or were as yet unoccupied residential dwellings, it is likely that the actual response rate will have been higher than this.

included in the following results, including two households that recorded that they had 11 and 30 resident pupils respectively. These responses are likely to be erroneous but are included as it is not possible to confirm this. If these are indeed erroneous returns, then the resultant findings will be over-inflated.

2.5 As set out in section 2.6 of the PPRS update, ideally the responses would exactly reflect the overall make-up of the developments surveyed. However, as with the PPRS update, the NEMS Research survey does not exactly align with the make-up of the developments. It is therefore necessary to weight the returns appropriately. As has been undertaken in the PPRS update it is clearly appropriate to weight the returns according to the number of bedrooms in dwellings given the significant variation between the number of pupils likely to arise in a 1 bedroom dwelling as compared to a 4+ bedroom dwelling. This variation is evident from Table 2.1 below.

Table 2.1 – unweighted net change pupil product ratios per household by the number of bedrooms

	Total pupil product ratio	Additional pupil product ratio
1	0.0	0.0
2	30.1	7.3
3	48.4	13.5
4+	87.0	27.4

2.6 Similarly, Table 2.2 demonstrates the significant variation between the pupil product ratios in dwellings of different tenures.

Table 2.2 – unweighted net change pupil product ratios per household by tenure

	Total pupil product ratio	Additional pupil product ratio
Affordable (either shared ownership or rented from a housing association or registered provider)	97.4	22.8
Market (either owned or privately rented)	55.6	17.7

2.7 Based on this analysis, it is considered appropriate to weight the results taking account of tenure to adjust to the under-representation of responses from affordable homes. This has not been undertaken in the PPRS Update notwithstanding the fact that as set out in Table 15a of the PPRS Update the child product ratio varies significantly depending upon tenure.

2.8 The proportion of different sized dwellings on these developments by bedroom size and tenure is compared with the proportion of responses in Table 2.3 below. From this the appropriate weighting is calculated[3].

Table 2.3 – dwellings on surveyed developments, responses received and weighting

Tenure	Bedrooms	Responses received	Dwellings on developments surveyed	Weighting
Affordable[4]	1	1.8%	4.5%	2.5
	2	6.1%	13.0%	2.1
	3	4.5%	6.8%	1.5
	4+	1.5%	1.9%	1.3
Market	1	1.0%	1.8%	1.8
	2	9.0%	14.2%	1.6
	3	33.1%	31.8%	1.0
	4+	42.9%	26.0%	0.6

2.9 Unlike the PPRS, the PPRS update also weights the results based on the proportion of homes in each of the surveyed sites. Given that the responses received broadly reflect the number of dwellings surveyed, this is considered unnecessary. It also has the effect of amplifying the effect of low response rates and reducing the effect of more representative response rates[5].

Outputs

2.10 The mean, standard deviation and 95% confidence intervals of the results of the NEMS Market Research survey are presented in Table 2.4 below using both the weighted and unweighted data.

[3] A total of 2 respondents didn't identify the number of bedrooms or the tenure of their property and so these have been excluded from the following results.
[4] For the purposes of this analysis, affordable housing is calculated from the sum of the homes in shared ownership and those rented from a housing association or registered provider.
[5] The same is true of the weighting applied to the number of bedrooms and tenure but these weightings are considered necessary as without this the significant differences between the number of pupils resident in a 1 bed house to the number in a 4+ bed house, or between an affordable home and a market home would not be taken into account.

Table 2.4 – descriptive statistics on pupil product ratio per 100 households

	Total pupil product ratio		Additional pupil product ratio	
	Unweighted	Weighted	Unweighted	Weighted
Mean pupil product ratio	61.5	55.9	18.4	15.8
95% confidence interval	±11.0	±9.3	±5.6	±4.6

2.12 These descriptive statistics identify that on average every 100 households in a new dwelling would be expected to accommodate 55.9 pupils but that only 15.8 of these would be additional to the local school population. The confidence intervals also indicate that there is a 95% chance that the average total number of pupils per 100 households will be in the range of 46.6 to 65.2, and that the average additional number of pupils per 100 households will be in the range of 11.3 to 20.4.

2.13 These pupil product ratios are broken down by the phase of schooling in Table 2.5 below. This provides the appropriate pupil product ratios to be used when determining the average number of additional pupils in each household occupying a new build dwelling.

Table 2.5 – Pupil product ratios per 100 households

	Total pupil product ratio		Additional pupil product ratio	
	Unweighted	Weighted	Unweighted	Weighted
Pre-school attendees	23.3	21.9	8.9	7.3
Primary school pupils	23.0	20.8	5.6	4.6
Secondary school pupils	12.2	10.5	1.0	1.0
Post-16 pupils	3.0	2.7	0.7	0.7
Total	**61.5**	**55.9**	**16.2**	**13.7**

2.15 According to the NEMS Market Research survey it would therefore be expected that every 100 households in a new dwelling would accommodate on average 21.9 pre-school attendees, 20.8 primary pupils, 10.5 secondary pupils and 2.7 post-16 pupils. Of these, only 7.3 pre-school attendees would require a new childcare

place, and only 4.6 primary pupils, 1.0 secondary pupils and 0.7 post-16 pupils would require a new school place[6].

2.16 The number of pupils in 100 dwellings will be lower owing to the fact that a proportion of dwellings are not occupied by a household. Applying the assumed occupancy rates of each District/Borough/City Council, the weighted pupil product ratios for 100 dwellings (rather than 100 households) are set out in Table 2.6 below.

Table 2.6 – weighted pupil product ratios per 100 dwellings

	Total pupil product ratio				Additional pupil product ratio			
	Pre-school	Primary	Secondary	Post-16	Pre-school	Primary	Secondary	Post-16
Cheltenham	20.9	19.8	10.0	2.5	7.0	4.4	1.0	0.7
Cotswold	19.9	18.8	9.5	2.4	6.7	4.2	0.9	0.7
Forest of Dean	21.0	19.9	10.1	2.6	7.0	4.4	1.0	0.7
Gloucester	21.2	20.0	10.1	2.6	7.1	4.4	1.0	0.7
Stroud	21.1	19.9	10.1	2.6	7.1	4.4	1.0	0.7
Tewkesbury	21.3	20.2	10.2	2.6	7.1	4.5	1.0	0.7
Gloucestershire[7]	**20.9**	**19.8**	**10.0**	**2.5**	**7.0**	**4.4**	**1.0**	**0.7**

2.18 As set out in Table 2.6, the NEMS Market Research survey therefore demonstrates that 100 new dwellings would accommodate on average 20.9 pre-school attendees (ranging from 19.9 to 21.3 across the Districts), 19.8 primary pupils (ranging from 18.8 to 20.2 across the Districts), 10.0 secondary pupils (ranging from 9.5 to 10.2 across the Districts), and 2.5 post-16 pupils (ranging from 2.4 to 2.6 across the Districts). Of these, only 7.0 pre-school attendees would require a new childcare place (ranging from 6.7 to 7.1 across the Districts), and only 4.4. primary pupils (ranging from 4.2 to 4.5), 1.0 secondary pupils (ranging from 0.9 to 1.0) and 0.7 post-16 pupils would require a new school place. In total there would be 53.3 pupils accommodated in 100 new dwellings (rather than households) of which 13.1 would be new to local schools. These findings are summarised in Table 2.7 below.

[6] As the remainder would remain in their existing school.
[7] Calculated using the proportionate share of housing requirements between the Districts in Gloucestershire

Table 2.7 – average weighted pupil product ratios per 100 dwellings across Gloucestershire

	Total pupil product ratio	Additional pupil product ratio
Pre-school attendees	20.9	7.0
Primary school pupils	19.8	4.4
Secondary school pupils	10.0	1.0
Post-16 pupils	2.5	0.7
Total	**53.3**	**13.1**

2.19 However, as identified in the School Capacity Survey there will also be effects further down the housing chain, as households that move to new dwellings may release an existing property, which in turn will be occupied by a household potentially with pupils new to local schools. These can be estimated based on the NEMS Market Research survey.

2.20 According to the NEMS Market Research survey, of the households that moved to a new property, 28.6% moved from a dwelling which was shared with others[8]. These households will not therefore release a dwelling for occupation by another household. Therefore, only 71.4% of the households that move to 100 new dwellings will release a dwelling for occupation in the first link of the housing chain[9]. These released dwellings will not all be within the local area as a proportion of these households will move from further afield. Nevertheless, even if it was assumed that all of the moves were local and that all of the pupils that occupy the released dwellings will attend local schools, based on the additional pupil product ratio that apply to new build dwellings and assuming these are broadly consistent with those that apply to existing dwellings, these 71.4 released dwellings would be expected to accommodate 5.0 pre-school attendees, 3.1 primary pupils, 0.7 secondary pupils and 0.5 post-16 pupils that are new to the local school population[10] in addition to the 7.0 pre-school pupils, 4.4 primary pupils, 1.0 secondary pupils and 0.7 post-16 pupils within the new dwellings.

[8] This broadly accords with the range of between 22% and 32% of properties sold to first-time buyers nationally according to the National Association of Estate Agents, many of whom will previously have shared with others. It will also reflect those households that have separated.
[9] The additional pupil product ratios for these dwellings was 13.1 which aligns with that of all dwellings and so it is not necessary to apply differential rates for those households moving from shared and unshared dwellings.
[10] Based on the additional pupil product ratios identified in Table 7.4.

2.21 This process continues ad infinitum until the housing chain is complete. The resultant number of additional pupils however soon approaches a limit of 45.7 new pupils for every 100 dwellings, comprising 24.5 pre-school attendees, 15.3 primary pupils, 3.5 secondary pupils and 2.4 post-16 pupils. The actual net increases in pupils in Gloucestershire will be lower as a proportion of the released dwellings in each link of the housing chain will be outside of Gloucestershire and therefore the pupils within these will not place a demand on places in Gloucestershire.

2.22 Therefore, based on the NEMS Research survey which reflects the product ratios experienced in recent developments, there have been 53.3 additional pupils accommodated in every 100 dwellings, of which only 13.1 are new to the local school population. However, when the additional pupils arising further down the housing chain are also taken into account, the delivery of 100 dwellings would have been expected to increase the local school population by a maximum of 45.7. The respective pupil product ratios per dwelling are set out in Table 2.8 below.

Table 2.8 – final pupil product ratios per 100 dwellings

	Total pupil product ratio	Additional pupil product ratio in new build dwelling	Additional pupil product ratio including along the housing chain
Pre-school attendees	20.9	7.0	24.5[11]
Primary school pupils	19.8	4.4	15.3
Secondary school pupils	10.0	1.0	3.5
Post-16 pupils	2.5	0.7	2.4
Total	**53.3**	**13.1**	**45.7**

Summary

2.23 Owing to the evidential gaps of the County Council, it has been necessary to undertake primary data collection. This provides the only available data on the necessary pupil product ratios for Gloucestershire, as the PPRS Update provides only child product ratios.

[11] It may appear surprising that a greater number of pre-school attendees will arise as an indirect result of new build development than will be resident within that new build development, but this is likely to be explained by the fact that households often move around the time they have new children, including to existing homes released along the housing chain.

2.24 The survey returns have been appropriately weighted broadly in accordance with the approach adopted in the PPRS Update but unlike the PPRS Update they have been adjusted to take account of the occupation of dwellings, migration and the effects along the housing market chain as required by the guidance.

2.25 The resulting pupil product ratios identify that there would be a maximum of 45.7 additional pupils new to local schools within 100 new build dwellings and along the housing market chain.

3. CONCLUSIONS AND RECOMMENDATIONS

3.1 The NEMS Market Research Survey provides the only assessment of additional pupil product ratios (rather than total child product ratios) in Gloucestershire upon which the need for additional school places can be calculated. The findings of this survey have been adjusted in accordance with the relevant guidance to take account of effects along the housing market chain to identify the appropriate rates to be applied across Gloucestershire. It should however be noted that owing to the differential dwelling occupancy rates that apply in each District, the appropriate rates to apply in each District will deviate slightly from the average across Gloucestershire.

3.2 As a new formulaic approach cannot be introduced without this having been subject to examination, neither the product ratios identified by the PPRS Update nor the preceding analysis can be used in the interim. However, the preceding analysis has been undertaken in order to assist the LPAs in the preparation of emerging Local Plans. This is likely to need to be complemented by detailed demographic modelling prepared in support of emerging Local Plans to ensure that the housing requirements and pupil product ratios are consistent.