

## Pupil Product Ratio Evidence Basis

### Background:

Worcestershire County Council (WCC) has a statutory duty under the Education Act 1996 to ensure there are sufficient school places for all children (aged 4-18) resident in Worcestershire who wish to attend a publicly funded school. The statutory duty under the Education Act includes having regard to the need to secure provision for children and young people with Special Educational Needs and Disabilities (SEND).

WCC also has a duty within the terms set out in the Childcare Act 2006 and 2016 to ensure all eligible under-fives have access to high quality free early education places, either within school provision or with private providers. In addition, and by September 2026, all parents and carers of primary school-aged children who need it should be able to access term-time childcare in their local area.

Worcestershire County Council anticipates continuing growth in its population (the number of households in Worcestershire is expected to grow by 20% from the 2018 total by 2043<sup>1</sup>) and must plan accordingly to ensure that education infrastructure can expand in line with the growing numbers of children and young people.

Without investment, schools and early education providers may be unable to accommodate these additional children, impacting on the ability of new and established communities to access childcare and education places and raising concerns over the viability and sustainability of development. Developers are therefore required to mitigate impact of the additional demand created by contributing to the cost of the additional places required.

WCC's Education Planning Obligations Policy<sup>2</sup> (EPOP) sets out how the impacts of proposed housing developments are assessed, and the basis for calculating any contributions required to support the creation of places to meet additional demand.

The Department for Education (DfE) issued updated guidance on 'Securing developer contributions for education' in 2023<sup>3</sup>. The guidance is underpinned by key principles which include:

- Housing development should mitigate its impact on community infrastructure, including schools and other education and childcare facilities.
- Evidence of pupil yield from housing development should be based on data from local housing developments.

### Pupil yield

The additional demand for places, both mainstream and SEND and across all phases, expected to be created by a planning housing development is forecast based on the number of new dwellings to be built multiplied by factors called Pupil Product Ratios, or PPRs. These calculations produce the yields, the numbers of children in each phase expected from the development.

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<sup>1</sup> [Worcestershire Housing Policy 2023-40](#)

<sup>2</sup> [WCC Education Planning Obligations Policy](#)

<sup>3</sup> [Securing developer contributions for education](#)

The PPRs used by WCC are derived from analysis of data from local housing developments. A detailed analysis of evidence relating to the pupil yield from 20 housing developments across the county was undertaken in 2019, and the PPR findings from that research were incorporated in the 2019 revision of the EPOP.

DfE guidance recommends that pupil yield factors be based on evidence from recent housing developments, matching school census data to housing developments to determine actual pupil number and characteristics over time. It is good practice to review pupil yield evidence regularly (DfE recommend approximately every five years), to take account of any changes in population growth and migration patterns, and so a similar exercise has been undertaken based on snapshots of data collected in 2023.

The DfE's updated guidance has informed our analysis, and the DfE have developed a pupil yield dashboard based on their own analysis of pupil yields from housing developments across England and Wales between 2008 and 2022. We have used the data behind this dashboard to provide a comparative analysis and to inform our findings and conclusions.

These findings will inform the revision of the EPOP, undertaken to ensure that it remains current and incorporates our approach to new complexities relating to planning applications in the current environment.

### **2023 Research - WCC:**

For WCC's own dataset, 30 developments across Worcestershire comprising 5730 dwellings were analysed (average size of 180 dwellings) – see the table below for details.

This was a sample of developments where over 40 dwellings had been completed before 2022, excluding nursing homes, student apartments or city apartments. Each of the six District councils in Worcestershire was represented, to cover any locality-based differences, and the oldest development was started in 2013, and the most recent in 2022.

Using pupil data from the termly School Censuses undertaken during the relevant period, the numbers and ages of pupils living in these new properties in each of the years from 2013 to 2022 could be derived. This data was compiled to provide the total numbers of pupils by National Curriculum Year group in each year following the commencement of construction of each development.

This exercise looked simply at dwelling level, and did not support a drill-down into tenure or the number of bedrooms in a property.

District	Education Planning Area	Site	Planning Application reference	Total dwellings	Year commenced
Wychavon	Evesham E	Bengeworth	W/10/00295	354	2013
Wychavon	Evesham N	Cheltenham Road	W/15/02761	498	2022
Wychavon	Evesham N	Pershore Road	W/12/02490	104	2018
Wychavon	Evesham N	Pershore Road	W/15/00293	140	2018
Wychavon	Evesham S	Millet Way, Broadway	W/13/00680	125	2021
Wychavon	Droitwich	Newlands Road	W/11/01073	248	2017
Wychavon	Droitwich	Copcut	W/14/02829/OUT	220	2017
Wychavon	Worcester N	Dilmore Lane, Fernhill Heath	W/14/00367	119	2017
Worcester	Worcester S	Crown Packaging	P17G0258	215	2020
Worcester	Worcester S	Dalziel Drive	P16G0178	257	2016
Worcester	Worcester S	Kilbury Drive	P16G0178	120	2017
Worcester	Worcester S	Weogoran	P18G0322	64	2020
Worcester	Worcester N	Ronkswood hospital	P13Q0221	178	2016
Wychavon	Worcester S	Swinesherd Way	15/01514/OU	355	2019
Malvern Hills	Worcester W	Grove Farm, Rushwick	MH/17/01193/FUL	96	2020
Wychavon	Worcester N	Gwillam's Farm, Bevere	W/13/00347/OU	247	2018
Wychavon	Pershore	Station Road	W/13/01365	260	2018
Wychavon	Pershore	Wyre Road	W/13/02064	62	2018
Wychavon	Pershore	Hurst Meadows	W/13/01578	120	2020
Bromsgrove	Bromsgrove	Henbrook Gdns, Stoke Prior	15/0687	216	2018
Bromsgrove	Bromsgrove	Norton Farm	12/0907/OUT	309	2017
Wyre Forest	Kidderminster W	British Sugar	WF/19/0603	179	2016
Wyre Forest	Kidderminster E	Churchfield	WF/18/0285	240	2021
Malvern Hills	Malvern S	Malvhina Court	MH/15/00888/OUT	48	2019
Malvern Hills	Martley	Martley	MH/15/01188	51	2017
Bromsgrove	Hagley	Bennet Drive	14/0629	115	2016
Malvern Hills	Upton	Kempsey Mead	MH/15/00394/RM	185	2017
Bromsgrove	Redditch NW	Holyoakes Field	11/0177	171	2015
Bromsgrove	Redditch NW	Holyoakes Field	14/00256	296	2019
Redditch	Redditch NW	Whetstone St	16/118/OUT	138	2017

## Key findings

The yields used by WCC are confirmed as still accurate for mainstream primary and secondary year groups. Local evidence bears out that the PPR factors used in the EPOP for calculating developer contributions are correct overall.

Years after commencement	Primary	Secondary
0	0.012	0.007
1	0.024	0.014
2	0.037	0.018
3	0.043	0.024
4	0.053	0.028
5	0.061	0.034
6	0.068	0.041
7	0.078	0.051
8	0.053	0.037
9	0.053	0.041
<b>Average</b>	<b>0.040</b>	<b>0.022</b>

At a high level, the *average* yields for all years of all developments are 0.040 for primary and 0.022 for secondary – these seem to indicate that actual yields are lower than our PPRs for primary (0.05) and secondary (0.04), but examination of the yields at a more granular level shows that the PPRs used are correct at specific points in time. The colour-coding in the table shows in red the years after commencement when the peak yields are hit in each phase.

Evidence from the developments shows that the families who move into new developments tend to have younger children (0-5 years) or they start families once they have moved in. The numbers of older children in each year gradually get smaller towards the upper age group and so within the first year or two of the development being occupied, there are very few secondary-aged children living there but there are children of Reception age ready to start school. Over the life of the development, the numbers of older children increase, and by the fifth year after commencement, the yield of secondary pupils (Year 7 intake) has reached the 0.04 ratio. At the same time, the numbers of younger children are still increasing, and so the higher pupil numbers from each cohort will move through the education system and demand places at the local schools at the relevant intake points.

**Primary year groups:**

<b>National Curriculum Year - school year group</b>							
<b>Years after commencement</b>	<b>R</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>
<b>0</b>	0.019	0.012	0.013	0.010	0.011	0.009	0.007
<b>1</b>	0.037	0.025	0.022	0.020	0.018	0.018	0.016
<b>2</b>	0.052	0.047	0.032	0.034	0.030	0.026	0.028
<b>3</b>	0.049	0.056	0.051	0.033	0.037	0.035	0.029
<b>4</b>	0.071	0.056	0.063	0.055	0.039	0.037	0.038
<b>5</b>	0.080	0.070	0.055	0.065	0.057	0.044	0.041
<b>6</b>	0.066	0.068	0.068	0.059	0.065	0.061	0.050
<b>7</b>	0.059	0.066	0.076	0.075	0.041	0.046	0.062
<b>8</b>	0.066	0.044	0.040	0.074	0.058	0.048	0.042
<b>9</b>	0.044	0.070	0.044	0.038	0.072	0.058	0.044
<b>Average</b>	<b>0.051</b>	<b>0.045</b>	<b>0.040</b>	<b>0.037</b>	<b>0.033</b>	<b>0.030</b>	<b>0.028</b>

**Secondary year groups:**

<b>National Curriculum Year - school year group</b>					
<b>Years after commencement</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>	<b>11</b>
<b>0</b>	0.008	0.006	0.008	0.008	0.006
<b>1</b>	0.015	0.013	0.008	0.013	0.012
<b>2</b>	0.020	0.022	0.017	0.013	0.016
<b>3</b>	0.028	0.024	0.026	0.020	0.015
<b>4</b>	0.032	0.028	0.025	0.026	0.027
<b>5</b>	0.041	0.037	0.032	0.025	0.028
<b>6</b>	0.047	0.044	0.037	0.032	0.029
<b>7</b>	0.043	0.047	0.047	0.034	0.027
<b>8</b>	0.038	0.048	0.038	0.034	0.028
<b>9</b>	0.044	0.042	0.048	0.036	0.034
<b>Average</b>	<b>0.025</b>	<b>0.023</b>	<b>0.020</b>	<b>0.018</b>	<b>0.018</b>

As found in the previous analysis exercise, there is no evidence to suggest that pupil yield declines after a period of time.

The evidential basis for these pupil yields provides justification for requests for education planning obligation contributions calculated using the factors stated in the EPOP. These contributions are for investment in education infrastructure where forecasts demonstrate that there will be insufficient pupil places available at local schools for the children expected to be yielded by a housing development.

For the impact on secondary education, we need to look slightly further ahead than our standard 4-year forecast window to assess the sufficiency of provision in 5 to 10 years' time, based on current numbers of known early years or primary-aged children and recent trends.

The spend window for planning obligation contributions, whereby the Authority has (usually) 10 years from the date of receipt of the final instalment in which to invest the monies, allows sufficient time for the creation of additional places to be postponed until the yields in older year groups have grown sufficiently to necessitate the expansion of provision.

## Early Years

The Early Years age range covers children from birth to pre-school (0+ to 3+), the year before the year in which each child has their 5<sup>th</sup> birthday. These pupil yields are derived by comparing registrations with Worcestershire GP surgeries with the newly built dwellings addresses.

Early Years yields are higher than those calculated for school-age year groups (which are derived from pupil headcount data from school censuses), as some Early Years children go on to attend independent schools whose pupil numbers are not included in school census data.

The overall average after 9 years post-building commencement is lower than the WCC base yield of 0.07 pupils per dwelling per year group. However, this is skewed by the lower yields from the first year after completion of construction - the colour-coding in the table shows in red the years after commencement when the peak yields are hit in each year group and highlights that yields in excess of 0.07 are delivered after around 4 years post-commencement.

**Early Years by year group**

<b>Years after commencement</b>	<b>0+</b>	<b>1+</b>	<b>2+</b>	<b>3+</b>
<b>0</b>	0.016	0.008	0.013	0.010
<b>1</b>	0.034	0.030	0.017	0.023
<b>2</b>	0.049	0.046	0.047	0.035
<b>3</b>	0.062	0.049	0.061	0.061
<b>4</b>	0.078	0.073	0.062	0.079
<b>5</b>	0.075	0.072	0.077	0.069
<b>6</b>	0.081	0.065	0.066	0.073
<b>7</b>	0.085	0.079	0.076	0.084
<b>8</b>	0.066	0.040	0.074	0.056
<b>9</b>	0.056	0.052	0.034	0.066
<b>Average</b>	<b>0.053</b>	<b>0.046</b>	<b>0.045</b>	<b>0.046</b>

## Pupils with Special Educational Needs and Disabilities

Contributions towards the creation of additional provision for pupils with SEND are calculated based on the percentage of children and young people in Worcestershire who have Education, Health and Care Plans (EHCPs). The percentage used in the current EPOP is 3%, but latest data shows that the percentage is now 4%. We do not use a separate PPR for students with SEND but without EHCPs, so any provision for such students is funded from the relevant primary or secondary contribution.

## 2023 Research - DfE:

The DfE collated data from Ordnance Survey, the Valuation Office agency and its own National Pupil database to form a dataset for analysis. The data includes address information for new build or newly developed properties from developments of 10 or more dwellings, across England completed during the years 2008 to 2022, together with details about each property such as whether it is a house or a flat, open market or affordable, and how many bedrooms it contains.

By matching individual pupils to these individual properties, DfE were able to produce statistics relating to different pupil yields in each local area in England, from national down to District level. The National Pupil database provided data on pupils who had EHCPs or required SEN support, so a yield for pupils requiring special school provision or alternative provision could be calculated, and the property data facilitated the calculation of yields for individual property types and sizes.

WCC downloaded copies of the DfE datasets to undertake our own analysis on pupil yields for developments, in Worcestershire and also in our statistical neighbours' areas.

## Key findings

Analysis of the DfE data derived the following pupil yields, shown with the current WCC ratios at the bottom for comparison.

Years after completion	Early Years	Primary		Secondary		SEND	Post-16	
		Total yield	Per year group	Total yield	Per year group		Total yield	Per year group
0	0.12	0.32	0.05	0.15	0.03	0.04	0.06	0.03
1	0.12	0.35	0.05	0.16	0.03	0.04	0.07	0.04
2	0.12	0.39	0.06	0.17	0.03	0.05	0.07	0.04
3	0.10	0.40	0.06	0.18	0.04	0.06	0.07	0.04
4	0.12	0.40	0.06	0.18	0.04	0.06	0.08	0.04
5	0.12	0.41	0.06	0.22	0.04	0.06	0.07	0.04
6	0.12	0.43	0.06	0.20	0.04	0.06	0.07	0.04
7	0.13	0.43	0.06	0.22	0.04	0.06	0.08	0.04
8	0.14	0.40	0.06	0.22	0.04	0.09	0.11	0.06
9	0.11	0.31	0.04	0.23	0.05	0.05	0.12	0.06
10	0.15	0.39	0.06	0.29	0.06		0.12	0.06
11	0.12	0.46	0.07	0.27	0.05		0.18	0.09
12	0.15	0.46	0.07	0.20	0.04		0.09	0.05
<b>WCC PPR</b>	<b>0.11</b>		<b>0.05</b>		<b>0.04</b>	<i>Contribution required for 3% of primary and secondary yields</i>		<b>0.04</b>



## Comparison to other local authorities

We looked at Worcestershire's yields compared with 7 of our closest statistical neighbours':

Rank (1=Closest)	Name	"Closeness"
1	Warwickshire	Extremely Close
2	North Somerset	Extremely Close
3	Essex	Extremely Close
4	Staffordshire	Very Close
5	Dorset	Very Close
6	East Sussex	Very Close
7	West Sussex	Very Close

## PPR per year group per dwelling used for calculation of contribution in published policy

	Early Years	Primary	Secondary	Post-16
<b>Worcestershire</b> 2019	0.07	0.05	0.04	0.04
<b>Warwickshire</b> 2023 - example Rugby	0.07	0.034	0.024	0.024
<b>North Somerset</b> 2014, based on example provided of 150 dwellings	-	0.057	0.044	-
<b>Essex</b> 2023	0.09	0.04	0.04	0.04
<b>Staffordshire</b> 2023	0.09	0.045	0.03	0.03
<b>Dorset</b>	CIL			
<b>East Sussex</b> 2014	charge by dwelling type			
<b>West Sussex</b> 2020	-	0.036	0.036	0.04

## PPR per year group per dwelling from DfE research

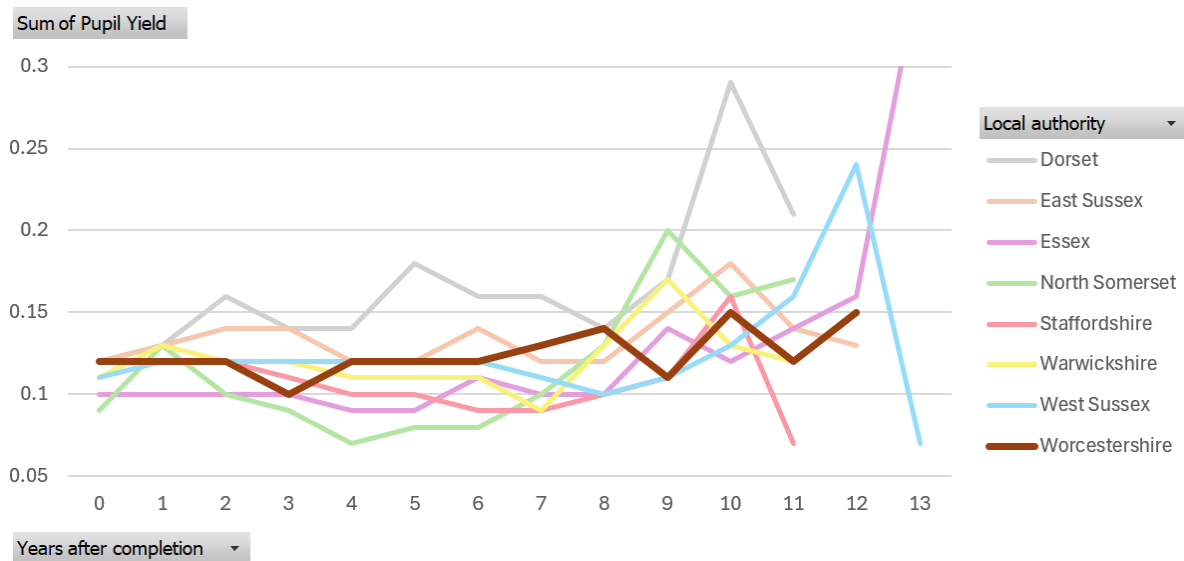
The analysis was based on DfE datasets of yields by phase and the number of years post-completion of housing development.

### Early Years:

Worcestershire's yields are in the middle of the range of these 7 neighbours and similar to the national average yields over the 13 year comparison period. Warwickshire, Staffordshire and West Sussex yields are very similar in most years, while North Somerset and Essex are lower in most years and Dorset and East Sussex are higher. All of the authorities show a peak in the Early Years yield 8 or more years post-completion.



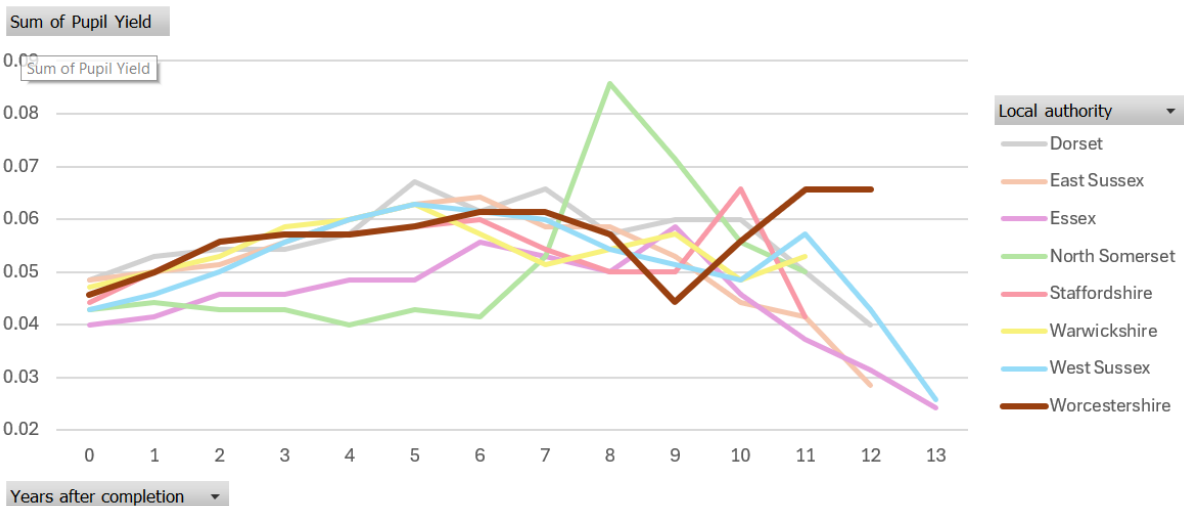
### Early Years yields comparison



### Primary:

Worcestershire’s yields are closely comparable to 5 of the 7 neighbours. North Somerset and Essex are 15-25% lower in most years. Most of the neighbours show a similar pattern of the yield gradually increasing over the early life of the development, peaking around year 6 and with reducing yields from around year 8 onwards, but the Worcestershire developments showed a second peak in years 11 and 12.

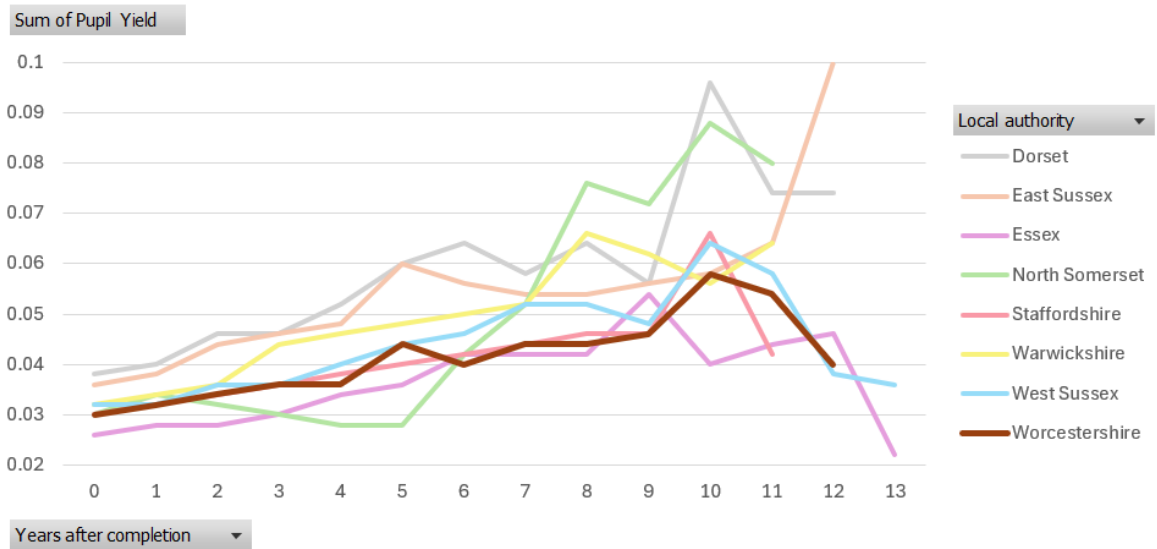
### Primary yields comparison



### Secondary:

Worcestershire's yields closely match those in Staffordshire in most years, and those in Warwickshire, North Somerset and West Sussex in the first 3 years after completion. The yields in 5 of the 7 neighbours were significantly higher 7 and more years after completion, but each authority shows the same pattern of the secondary yield gradually increasing over the life of the development and peaking around year 10.

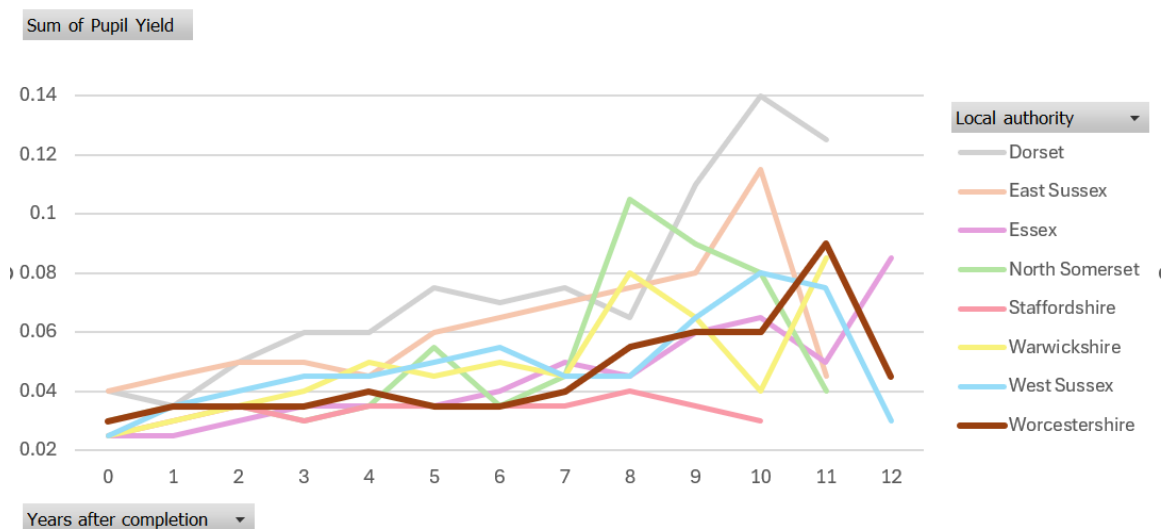
#### Secondary yields comparison



### Post-16:

Worcestershire's yields are in the middle of the range of these 7 neighbours. The yields in Dorset, East Sussex and West Sussex are significantly higher in nearly all years, while the yields in Essex and Staffordshire are significantly lower. Warwickshire and North Somerset are comparable overall, although higher in some years and lower in others.

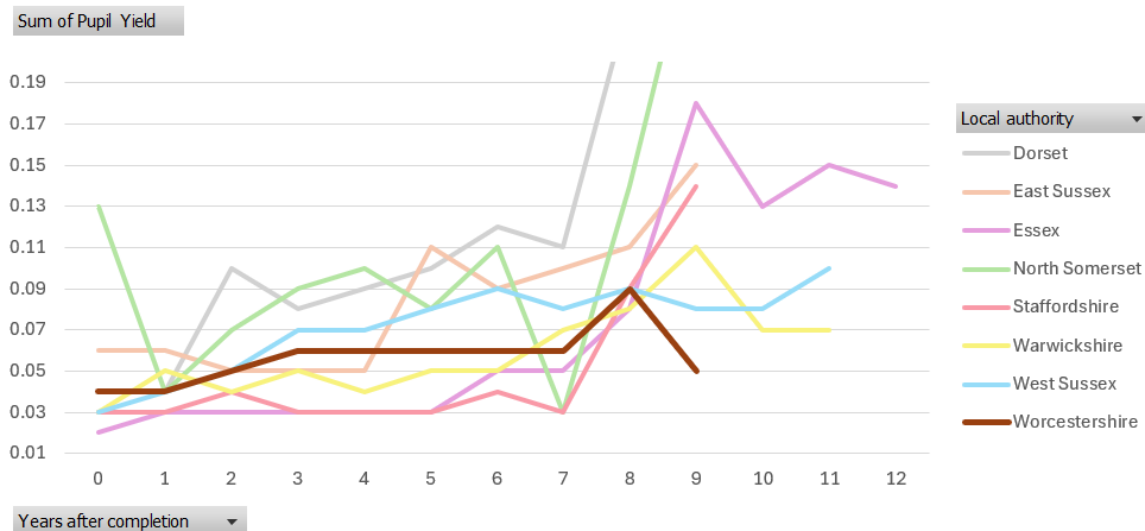
#### Post-16 yields comparison



## SEND:

Worcestershire sits in the middle of the range of its statistical neighbours. The range of yields for SEND is much wider than for the other education phases. The yields in Essex and Staffordshire are consistently 20 – 50% lower in the first 5 years post-completion, whereas those in North Somerset, Dorset, East Sussex and West Sussex are consistently higher, 50-100% higher in a number of years. This scope of difference may be due to different approaches to SEND assessment and the issuing of EHCPs.

### SEND yields comparison



### Re-circulation of pupils – local moves

Neither set of pupil yield data accounts for local movement of families, where some children already on roll are likely to remain in their current early years settings or schools and so may not require the creation of new places. However, DfE guidance states that

‘Whilst there may be no immediate impact on local education capacity as a result of local moves, housing development increases the population in a pupil place planning area and creates permanent future demand for local school places, while older properties that are vacated by local families can be backfilled by new residents requiring school places.

We have not sought to quantify the extent of backfilling or local movement, as this is highly variable, subject to rapid change such as incoming refugees, and affects local school place planning in different ways. Depending on the local authority’s configuration of pupil planning areas and characteristics such as urban or rural designation, “local movement” could be defined as moves within the pupil planning area, school catchment area, or a reasonable walking distance of the development. Local authorities can adjust the department’s pupil yield factors to account for local movement and backfilling if they have the evidence to demonstrate this and consider it to be appropriate.’

WCC has undertaken an analysis of individual pupil level data relating to a sample of the developments in Worcestershire used in our yield dataset, to identify local moves and to assess whether there are any consistent patterns that should be applied to adjust any of the PPRs. The findings show that that local movement is indeed highly variable and there is therefore no pattern that should be applied as an adjustment to the standard PPRs.

## Conclusion

This analysis has shown that the PPRs used in the WCC EPOP are supported by evidence from housing developments in Worcestershire built between 2008 and 2022:

- PPR varies by development, dependent on location, housing mix etc. but the patterns of yields are generally consistent.
- Early Years yield from new developments is on average 12 pre-school age children per 100 dwellings – WCC's PPR is 0.11
- The average primary yield from new developments over the first 10 years following completion is 5 pupils per year group per 100 dwellings – WCC's PPR is 0.05.
- It is likely that the early years and Primary PPR will continue to increase gradually beyond the first few years, and it is important to ensure that suitable permanent spaces are available to support this ongoing growth in demand.
- The average secondary yield from new developments over the first 10 years following completion is 4 students per year group per 100 dwellings – WCC's PPR is 0.04.
- It is likely that the secondary PPR will be lower than the average in the first several years and therefore mitigation of the increased demand in the form of additional secondary accommodation may be staggered over several years. S106 contributions to meet this need may therefore also be sought later on in the development timescale to support the viability and cash-flow of large developments.
- This research supports the need for permanent rather than temporary accommodation. The pupil yields from developments remain consistent over time and sufficient capacity should be ensured in order to support the initial peak in PPR before settling to 5 per 100.
- The average post-16 yield from new developments over the first 10 years following completion echoes the secondary yield of 4 students per year group per 100 dwellings – WCC's PPR is 0.04. Contributions are sought where the local secondary school includes sixth form provision.
- The average SEND yield from new developments over the first 10 years following completion is 6 pupils per 100 dwellings who will require SEN or alternative provision. WCC does not use a SEND PPR but instead requires a contribution at four times the rate of the relevant primary or secondary Building Cost Multiplier for 3% of the total calculated yield of primary or secondary pupils for any development of 50 dwellings or more. This calculation equates to charging for a yield of between 0.01 and 0.02 depending on the total number of dwellings.