



Hertfordshire County Council

Information Provided by Children's Services

**Forecast of pupil places for Transport
Appraisals**

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1. Purpose of the Data Gathering and Modelling

Hertfordshire County Council (HCC) has identified the need for a new secondary school to meet the increasing demand for places in the Harpenden Secondary Education Planning Area (EPA). In order to identify the most suitable site for this new school, it has appointed Vincent & Goring (V&G), Town Planning consultants to carry out a comparative site assessment and a robust site sieving exercise. This will identify the site for which the strongest “very special circumstances” case can be advanced.

One of the key factors in this assessment will be the considered impact of a new school on the local highway network and whether this could be accommodated at each site. V&G has appointed specialist highway consultants, Stomor, to carry out Transport Appraisals which will form part of the Town Planning comparative site assessment.

As part of these appraisals, Stomor required HCC’s Children’s Services (CS) Department to provide information about where pupils were likely to travel from to the new school. In order to provide this information, Children’s Services developed a bespoke methodology to produce a dataset for each potential site (using HCC’s admissions software) based on a range of data and assumptions. This took account of the likely location of future secondary age pupils and applied current patterns of parental preference to model the potential pupil pattern of pupils attending the new school, full to 8 f.e..

2. Methodology: Highways pupil distribution modelling

The following articulates the methodology used to produce the data provided to Stomor for use in its Transport Appraisals. The model is based on established data sets to which a range of assumptions were applied (based on professional advice from the Admission and Transport team).

The modelling has been applied to each of the following 10 sites: A, C, D, E, F, G, H, I, J, K, as identified by V&G. (No further work is currently recommended on Site B and it will remain set aside until such time as further technical evidence appears that requires it to be re-evaluated.)

The following explains the format, data sources, sequential steps and assumptions in the modelling exercise.

2.1 Format

In order to undertake its assessment, Stomor required information on likely pupil distribution per site when the new school is full. In this instance, full has been determined as 8 f.e., as that is the maximum school size the site would need to accommodate.

Stomor provided CS with a map indicating defined areas for use in its modelling. The boundaries, specified by Stomor, are based on the local highway network and allow likely pupil journeys to be allocated appropriately.

A copy of the map is included as Appendix A.

The required output from the CS pupil modelling exercise was a populated table for each site, as follows:

SITE X	Expected pupil numbers			
Area Name	Yrs 7 to 11	Yr 12	Yr 13	Total
Area 1				
Area 2				
Area 3				
Area 4				
Area 5				
Area 6				
Area 7				
Area Blackmore End				
Area Flamstead				
Area Hemel West & South				
Area Kimpton				
Area Redbourn				
Area Sandridge				
Area Wheathampstead				
Luton & Out of County NW				
N Villages				
St Albans & South				
Grand Total				

2.2 Data Sources

There is no single existing data set which could provide the detailed information required by Stomor about potential future pupil distribution. Instead several established data sources were used in the development and application of this methodology, to take account of current pupil location, future growth and parental preference in the area. These were:

A. School Census January 2014 (pupils attending all primary schools in the Harpenden EPA, by home postcode).

Rationale: This provides home postcode data for all pupils in Reception to year 3 in the academic year 2013/14. This is likely to represent the majority of pupils who will seek to transfer to secondary school in the area from 2017 to 2020. This information from the school census data is also used in CS's forecasting tool, so the baseline data is consistent with that used elsewhere.

B. Admission allocation data June 2014 by home postcode

Rationale: This provides information on those pupils allocated a reception place at a primary school in the Harpenden EPA for academic year 2014/15 and this is likely to represent the majority of pupils seeking secondary provision in 2021.

Note: Using the data provided in A and B collectively gives the best baseline overview of the pupils who are likely to require a secondary place from 2017 to 2021. 2017/18 is the proposed opening date for the new school, so this data correlates with the first five years of the school being open.

Maps showing the location of pupils contained in datasets A and B is included as Appendix B(i) and B(ii).

C. CS secondary forecast summer 2014 (year 7 intake).

Rationale: Local CS forecasts are made every six months using a software system to predict pupil numbers in each education planning area. It takes the following datasets into account within the forecasting methodology:

- 0-5 year olds registered with GPs
- primary pupils moving on to secondary schools
- trends, including migration to and from other authorities and the independent sector; and
- an assumed pupil yield from new or planned housing developments

Taking account of these factors, it provides a single 'demand for year 7 places' figure for each secondary planning area.

The secondary forecast for Harpenden indicates an increase in demand between the number of pupils on the primary school census data and the number of pupils forecast to require a secondary school place from 2017 onward. This increase is associated with pupil migration and pupil yield from new housing in the area. As such, it is appropriate to take account of the forecast figure in the methodology,

as this takes account of likely pupil demand in the area at the time the school will be open.

D. The admissions preference profile of the cohort which applied for a secondary school place as part of secondary transfer for September 2013, adjusted for some groups to account for the existence of a new school at each site.

Rationale: This enabled the current pattern of parental preference in the area to be taken in to account in the modelling. Two main assumptions were made in order to do this, as follows:

a) The assumption applied was that the new school would be ranked as a fourth preference for the following reasons:

- The 3 existing schools in Harpenden are popular, successful & oversubscribed and it is assumed that will continue. Families that traditionally look to Harpenden for schooling are more likely to rank more highly schools with a proven track record.
- With the equal preference system in place, preference is only relevant to an application when, considering oversubscription criteria, a child would be offered more than one school place. i.e. it is the school's oversubscription criteria that are the most important issue, ranking of preference is secondary.
- Roundwood Park & Sir John Lawes Schools both use HCC's oversubscription criteria. It is assumed the new school would do the same, as indicated by the Harpenden Secondary School Trust. One of the key aspects of HCC's arrangements is the "nearest school" rule. Under this rule every child has a single "nearest school" – the nearest non faith, co-educational school/academy that does not use academic testing. Both Roundwood Park & Sir John Lawes have filled to (or almost to) capacity under this rule in recent years. Therefore regardless of rank (unless a higher rule is met – Special Needs/Social Medical/Sibling) pupils are likely to be allocated under the nearest school rule.
- If a "first preference first system" was in place (now illegal) it would be a very different situation and a different assumption may have been more appropriate. However, there is no indication that there will be a change in national policy which would alter application of the equal preference system in the allocation process.

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b) A preference for the new school was added for every pupil included in one (or more) of the following categories:

- Those for whom New School would be their nearest school (To deliver this the applicant cohort will need to be changed for each individual site)

- Those who had applied for one of Sir John Lawes, Roundwood Park or St Georges as a first preference
- Those living in the following Parishes
 - Harpenden
 - Harpenden Rural
 - Redbourn
 - Sandridge
 - Flamstead
 - Markyate
 - Kings Walden
 - St Pauls Walden
 - Kimpton &
 - Wheathampstead

2.2. Sequential Analytical Steps Applied to the Data

The following steps were then undertaken, utilising the data sets above. The steps were taken in this order so that the data could be interrogated and compiled in readiness to be run through the model allocation system and then presented for use by Stomor.

- **Step 1:** Map pupils in the school census and allocation data (datasets A and B) and group by home postcode, using postcode area.

Rationale: Grouping the pupils this way (by postcode) allowed a consistent way of capturing where pupils live.

- **Step 2:** Calculate the mean average number of pupils from each postcode area over the five year period.

Rationale: The Admissions and Transport team required School Planning to provide one set of pupil information data to use in the model allocation process. The most appropriate way to obtain one robust dataset was to calculate a mean average across the five year groups contained in datasets A and B, by each postcode area. This would account for any large fluctuations in numbers in each area, whilst also acknowledging where increases/decreases in pupil numbers have been seen over a five year period. The outcome of this work is attached as Appendix C.

- **Step 3:** Apportion the total number of pupils in each of these postcode areas in line with the peak in forecast demand for year 7 pupils (820 pupils).

Rationale: The mean average calculated in step 2 above totalled 773 pupils across the whole secondary planning area, compared with a peak forecast demand figure of 820 pupils. The forecast assumes this cohort will grow between now (2014) and when

these children will attend the school (post 2017) primarily because of new housing and people moving in.

By increasing the cohort to match the forecast (820 pupils), it ensures that numbers used in the model align with the growth indicated by the forecast and are consistent with assumptions being made elsewhere.

As the local spatial plan is not available and there is no definitive conclusion to where housing development will be undertaken, applying a proportionate uplift to existing known pupil numbers by postcode area is considered a reasonable approach to apportioning the additional pupils. The 'pupil average' and 'uplifted' figures can be found in Appendix C.

- **Step 4:** Use the data produced in step 3 to run a 'model allocation process, using HCC's admissions software.

Rationale: This will use the increased number of pupils, their location and the preference profile to allocate the model cohort school places according to the admission criteria. Each site will be modelled using mapping co-ordinates to inform the distance based criteria in the modelling.

- **Step 5:** Map the outcome of the model year 7 allocation process and attribute the pupils to the areas designated by Stomor (as outlined in the table in section 2.1 above).

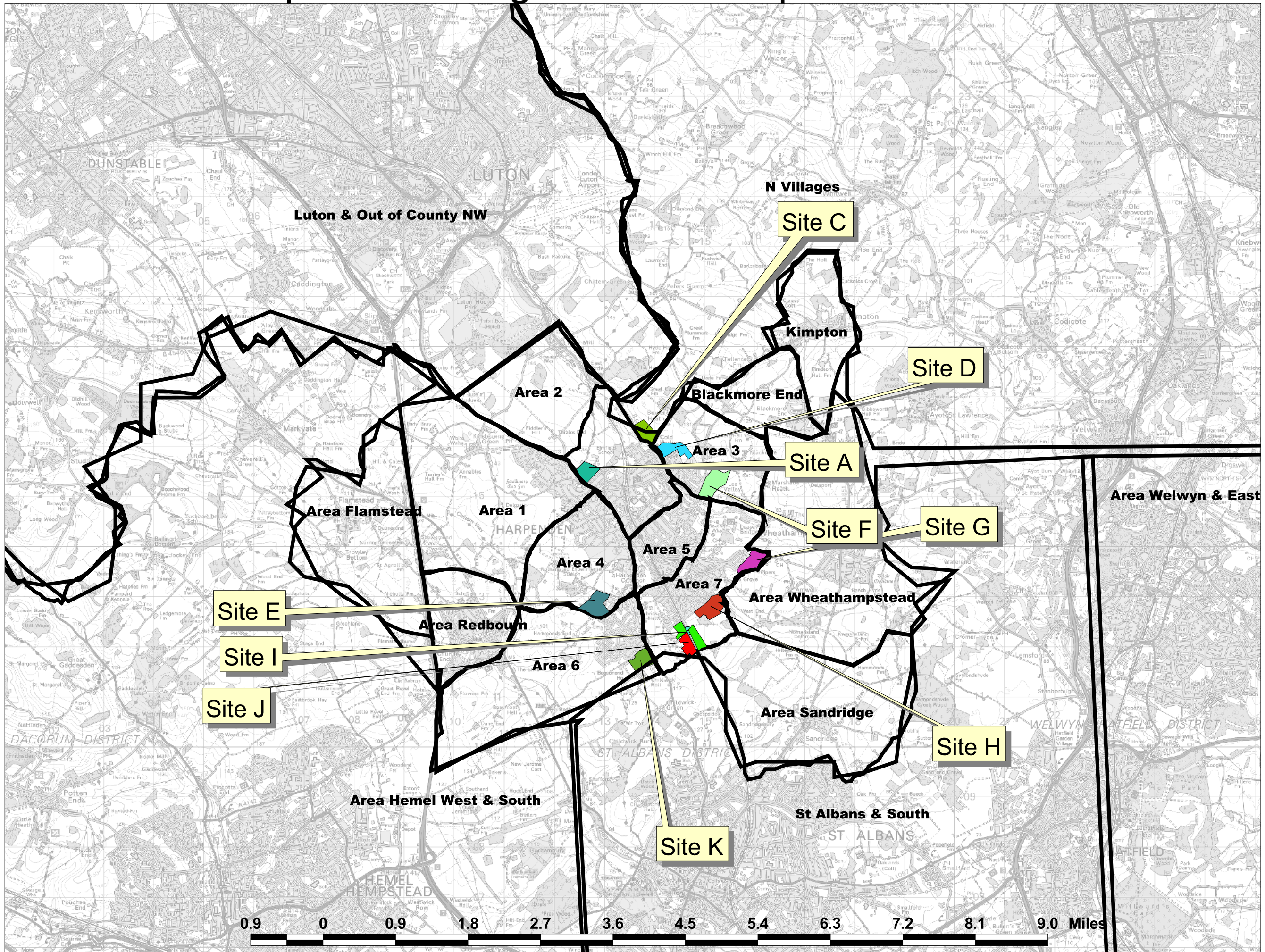
Rationale: This will provide a map indicating the number of year 7 pupils living in each of the designated areas identified by Stomor. Copies of each map are attached as appendices D(i) to M(i)

- **Step 6:** Quantify the total number of pupils from each of the designated areas likely to attend the new school when it is full, using the output from the model allocation process.
- **Method:** The outcome of model allocation process only provides information for a year 7 cohort. In order to account for the school when it is full, this cohort needs to be multiplied by 5 to obtain a total for year groups 7-11. The staying on rates for years 12 and 13 at Sir John Lawes and Roundwood Park were calculated and then averaged over the last 5 years to obtain a multiplier for the likely stay on rate in to years 12 and 13 at the new school. These multipliers were then applied to the modelled cohort.

Rationale: Stomor requested data for the school when full (years 7-11 and years 12-13)

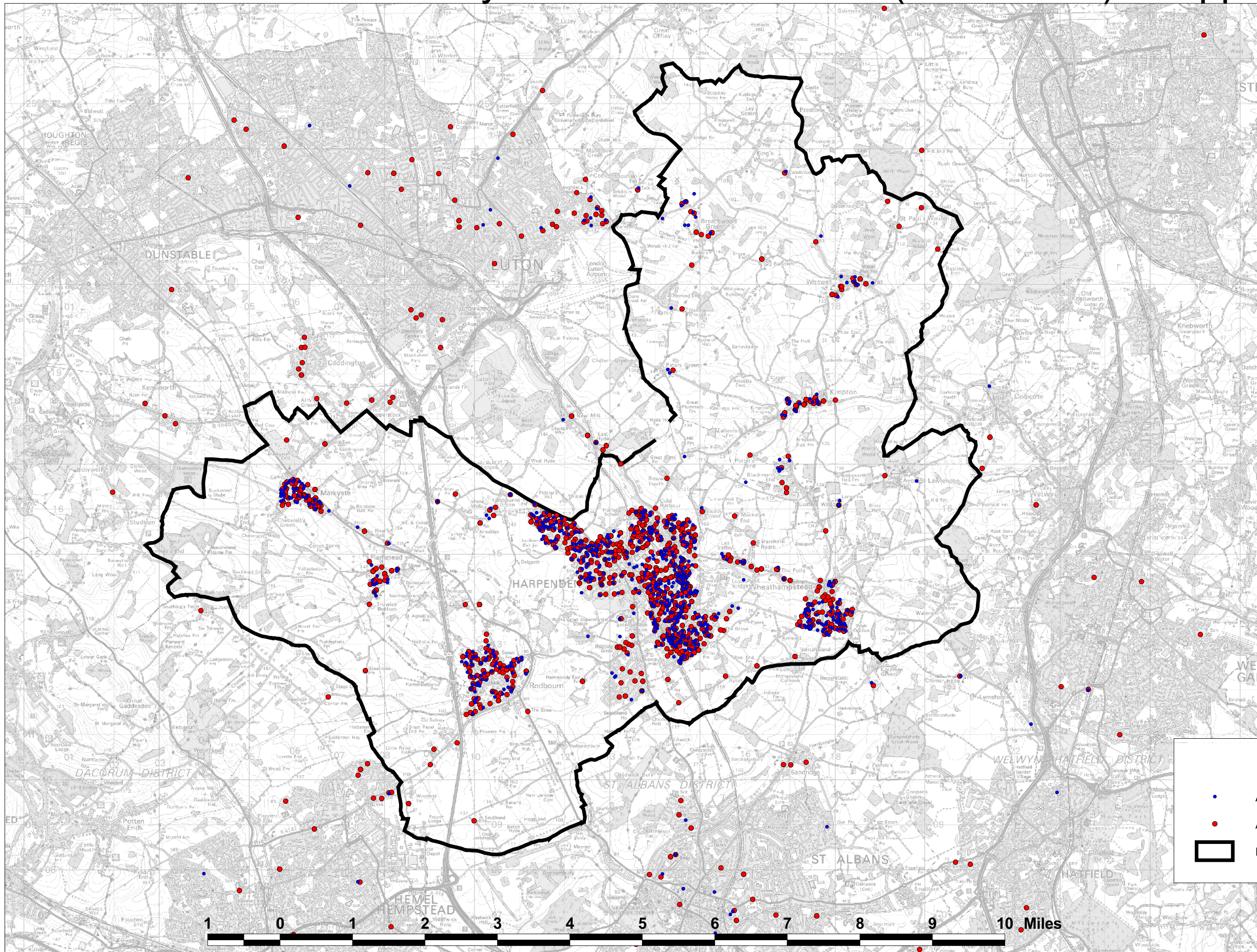
- **Step 7:** Record the totals in the table (as set out in section 2.1) and provide to Stomor on a site by site basis, along with a map for each site. Copies of the tables are provided as Appendices D(ii) to M(ii)

Harpenden Designated Site Map and Traffic Areas



School Census & Primary Allocation Data 2014 (Outer Area)

Appendix B(i)



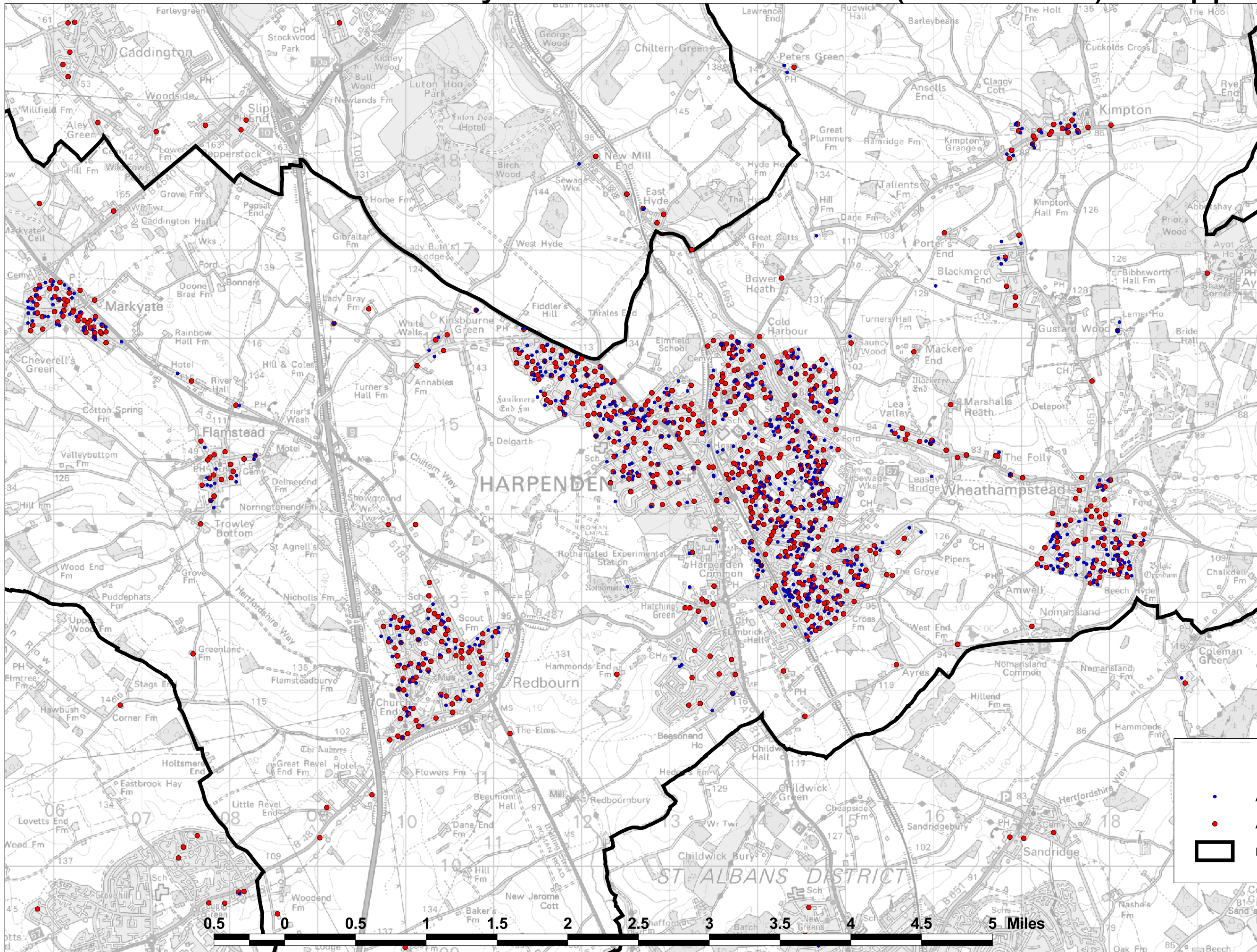
Key

- Allocations
- All Pupils
- ▭ Harpenden Secondary PA

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100019606 ,2014

School Census & Primary Allocation Data 2014 (Inner Area)

Appendix B(ii)



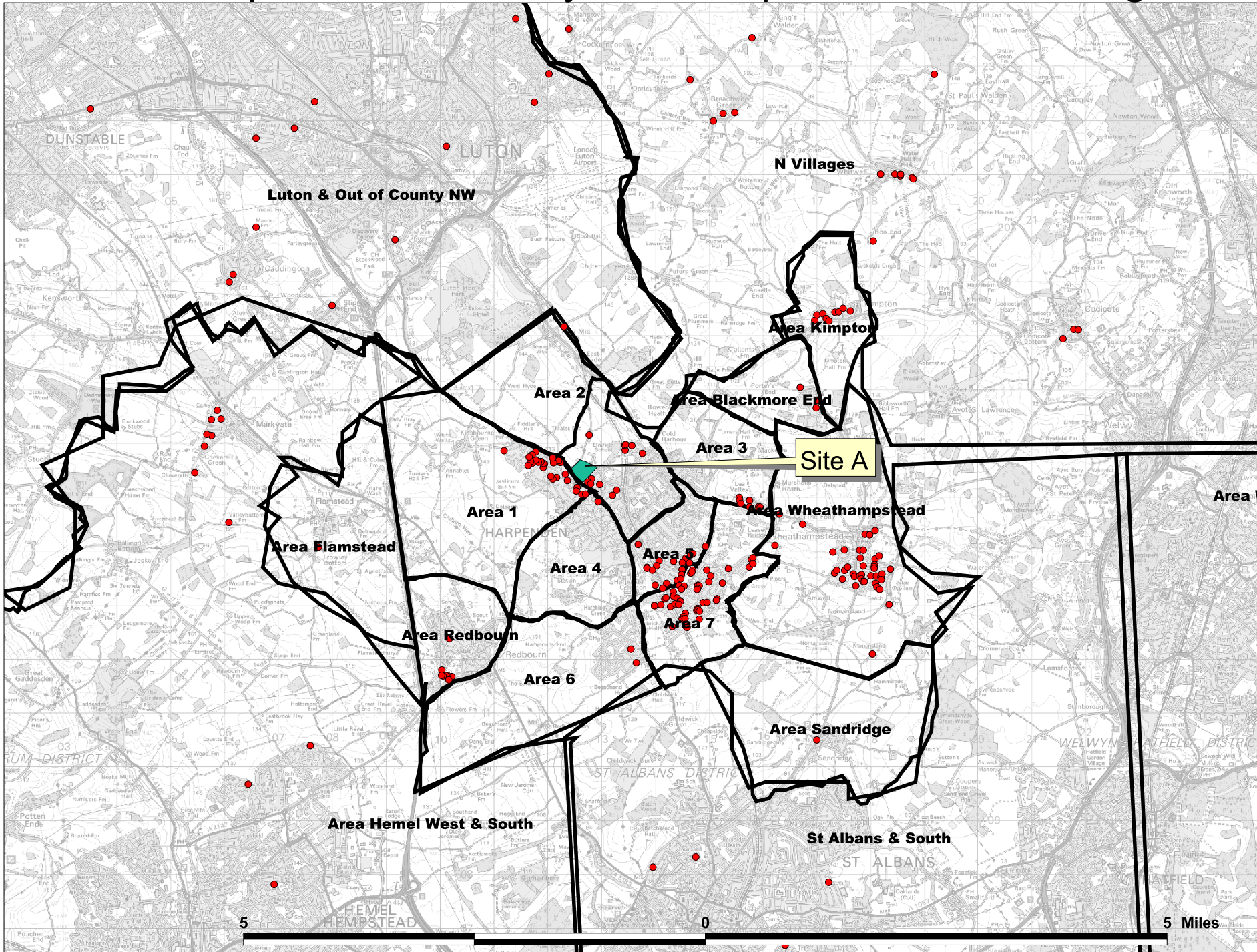
Key

- Allocations
- All Pupils
- ▭ Harpenden Secondary PA

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	5 year average	5 year average with uplift to 820 pupils	PC In/Out Harpenden SPA
Forecast	820		
AL1 3	0	0	Out
AL1 4	1	1	Out
AL1 5	1	1	Out
AL108	1	1	Out
AL109	0	0	Out
AL2 1	1	1	Out
AL2 3	0	0	Out
AL3 4	1	1	Out
AL3 5	2	2	Out
AL3 6	1	2	In
AL3 7	73	78	In
AL3 8	49	52	In
AL4 0	1	1	Out
AL4 4	0	0	Out
AL4 8	87	92	In
AL4 9	1	1	Out
AL5 1	93	98	In
AL5 2	36	39	In
AL5 3	88	93	In
AL5 4	104	110	In
AL5 5	148	157	In
AL6 9	1	1	In
AL7 1	0	0	Out
AL7 2	0	0	Out
AL7 3	0	0	Out
AL7 4	0	0	Out
AL8 6	1	1	Out
AL8 7	1	1	Out
HP1 3	0	0	Out
HP2 5	1	1	Out
HP2 6	1	1	Out
HP2 7	3	3	In
HP3 0	0	0	Out
HP3 8	1	1	Out
HP3 9	1	1	Out
LU1 3	3	3	Out
LU1 4	5	5	Out
LU1 5	0	0	Out
LU2 0	1	1	Out
LU2 7	1	2	Out
LU2 8	7	7	In
LU2 9	7	7	In
LU3 1	1	1	Out
LU3 2	0	0	Out
LU3 7	0	0	Out
LU4 0	0	0	Out
LU4 8	1	1	Out
LU4 9	1	1	Out
LU5 4	1	1	Out
LU5 5	0	0	Out
LU6 2	1	1	Out
LU6 3	0	0	Out
MK111	0	0	Out
MK455	0	0	Out
SG1 4	0	0	Out
SG4 7	1	1	Out
SG4 8	38	40	In
SG4 9	1	1	Out
SG5 2	0	0	Out
SG6 3	1	1	Out
SS8 9	0	0	Out
WD4 8	0	0	Out
AL1 1	0	0	Out
MK16	0	0	Out
AL10	0	0	Out
Grand Total	773	820	

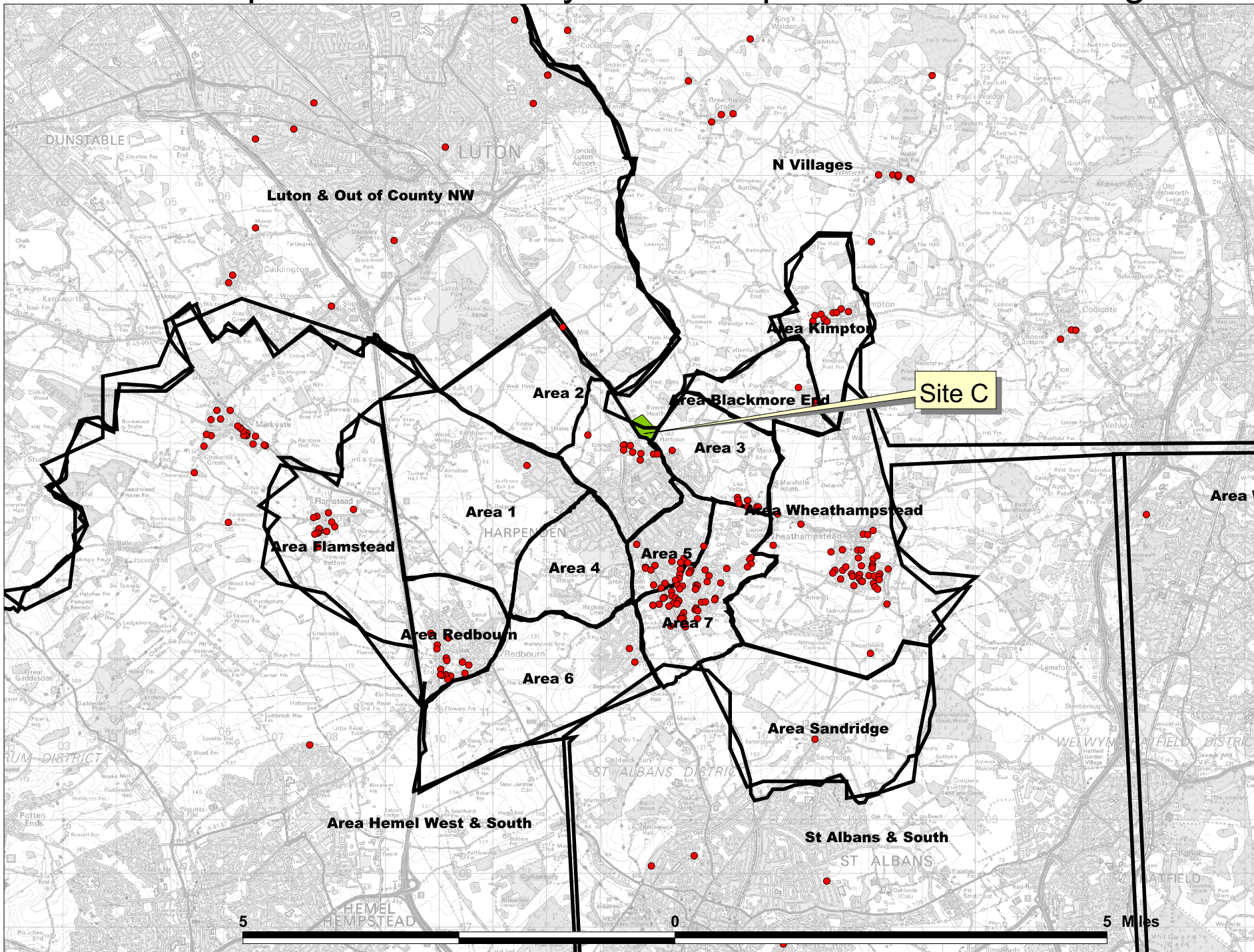
Harpenden Secondary Site A Pupil Location Modelling Appendix D(i)



Key	
●	Site A Pupil Locations

Site A				
Area Name	Yrs 7 to 11	Yr 12	Yr 13	Total
Area 1	140	22	19	181
Area 2	65	10	9	84
Area 3	40	6	5	51
Area 4	5	1	1	7
Area 5	95	15	13	123
Area 6	10	2	2	14
Area 7	270	42	36	348
Area Blackmore End	15	2	2	19
Area Flamstead	5	1	1	7
Area Hemel West & South	55	9	8	72
Area Kimpton	45	7	6	58
Area Redbourn	40	6	5	51
Area Sandridge	5	1	1	7
Area Wheathampstead	215	33	29	277
Luton & Out of County NW	75	12	10	97
N Villages	95	15	13	123
St Albans & South	25	4	3	32
Grand Total	1200	188	163	1551

Harpenden Secondary Site C Pupil Location Modelling Appendix E(i)



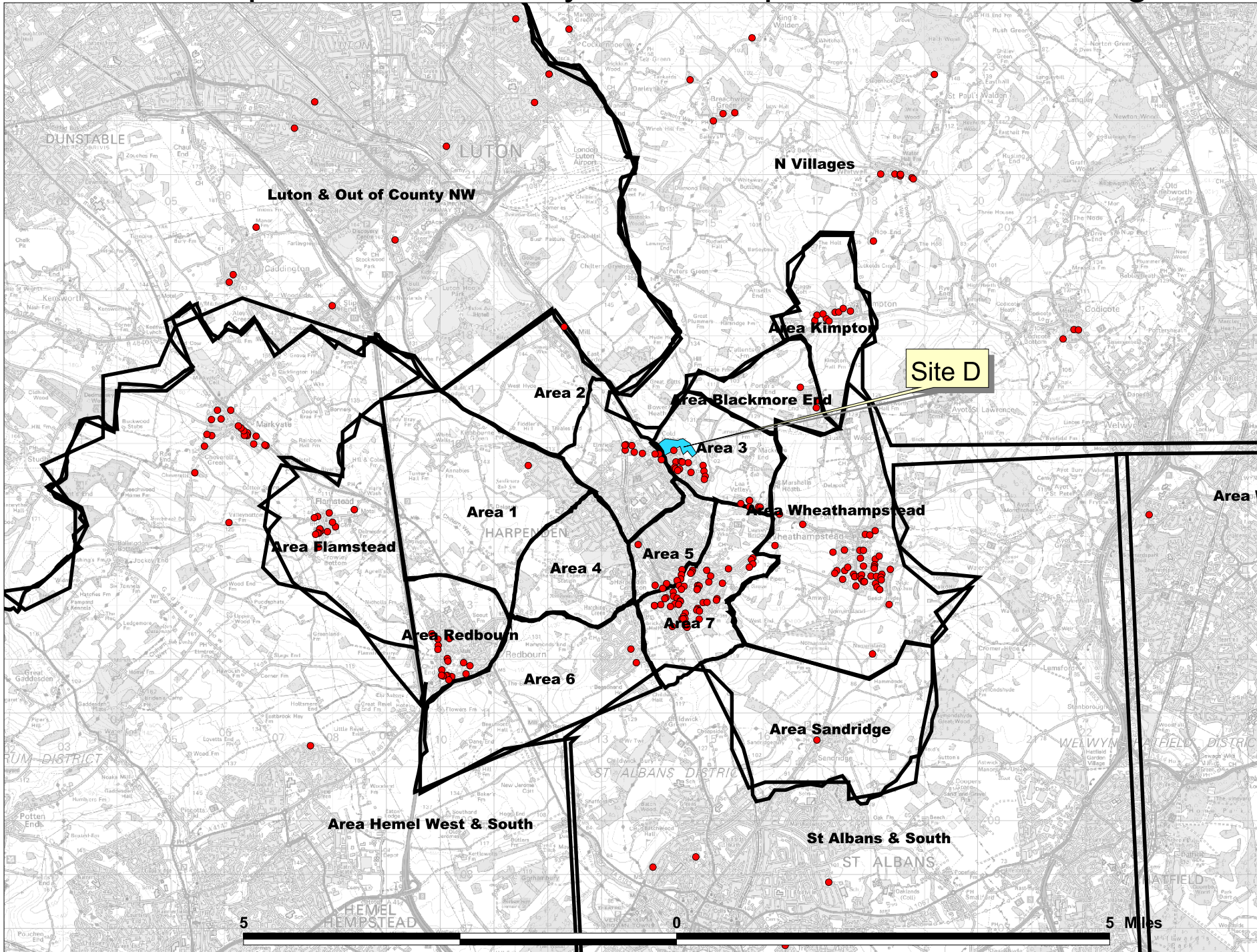
Key

- Site C Pupil Locations

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Site C				
Area Name	Yrs 7 to 11	Yr 12	Yr 13	Total
Area 1	5	1	1	7
Area 2	55	9	8	72
Area 3	45	7	6	58
Area 4	80	12	10	102
Area 5	10	2	2	14
Area 6	270	42	36	348
Area 7	15	2	2	19
Area Blackmore End	70	11	10	91
Area Flamstead	110	17	15	142
Area Hemel West & South	45	7	6	58
Area Kimpton	80	12	10	102
Area Redbourn	5	1	1	7
Area Sandridge	215	33	29	277
Area Wheathampstead	70	11	10	91
Luton & Out of County NW	95	15	13	123
N Villages	25	4	3	32
St Albans & South	5	1	1	7
Grand Total	1200	187	163	1550

Harpenden Secondary Site D Pupil Location Modelling Appendix F(i)



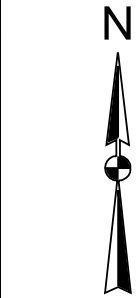
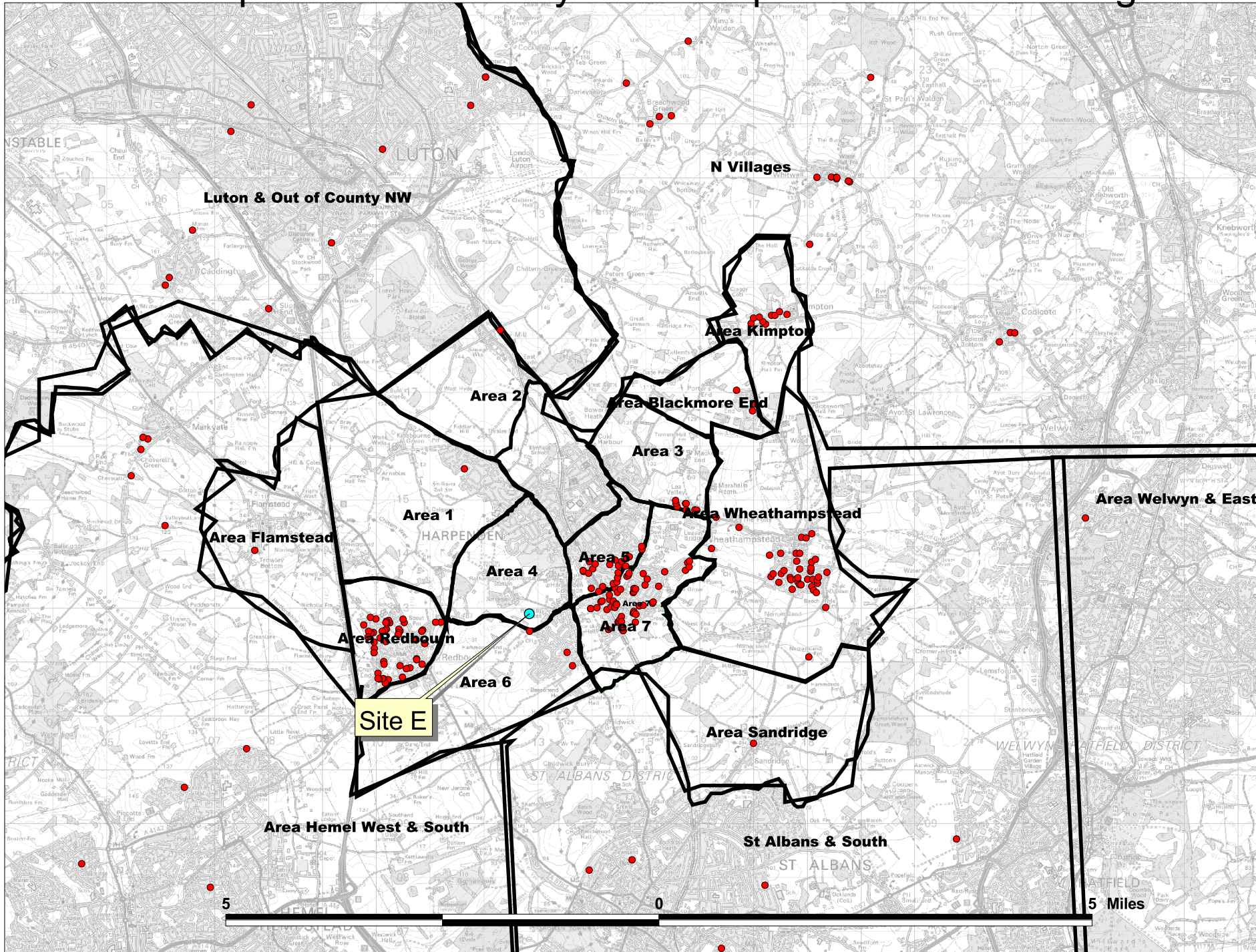
Key

- Site D Pupil Locations

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Site D

AREA_NAME	Yrs 7 to 11	Yr 12 Rounded	Yr 13 Rounded	Total
Area 1	5	1	1	7
Area 2	50	8	7	65
Area 3	100	16	14	130
Area 5	35	5	4	44
Area 6	10	2	2	14
Area 7	265	41	35	341
Area Blackmore End	15	2	2	19
Area Flamstead	70	11	10	91
Area Hemel West & South	110	17	15	142
Area Kimpton	45	7	6	58
Area Redbourn	85	13	11	109
Area Sandridge	5	1	1	7
Area Welwyn & East	5	1	1	7
Area Wheathampstead	215	33	29	277
Luton & Out of County NW	65	10	9	84
N Villages	95	15	13	123
St Albans & South	25	4	3	32
Grand Total	1200	187	163	1550



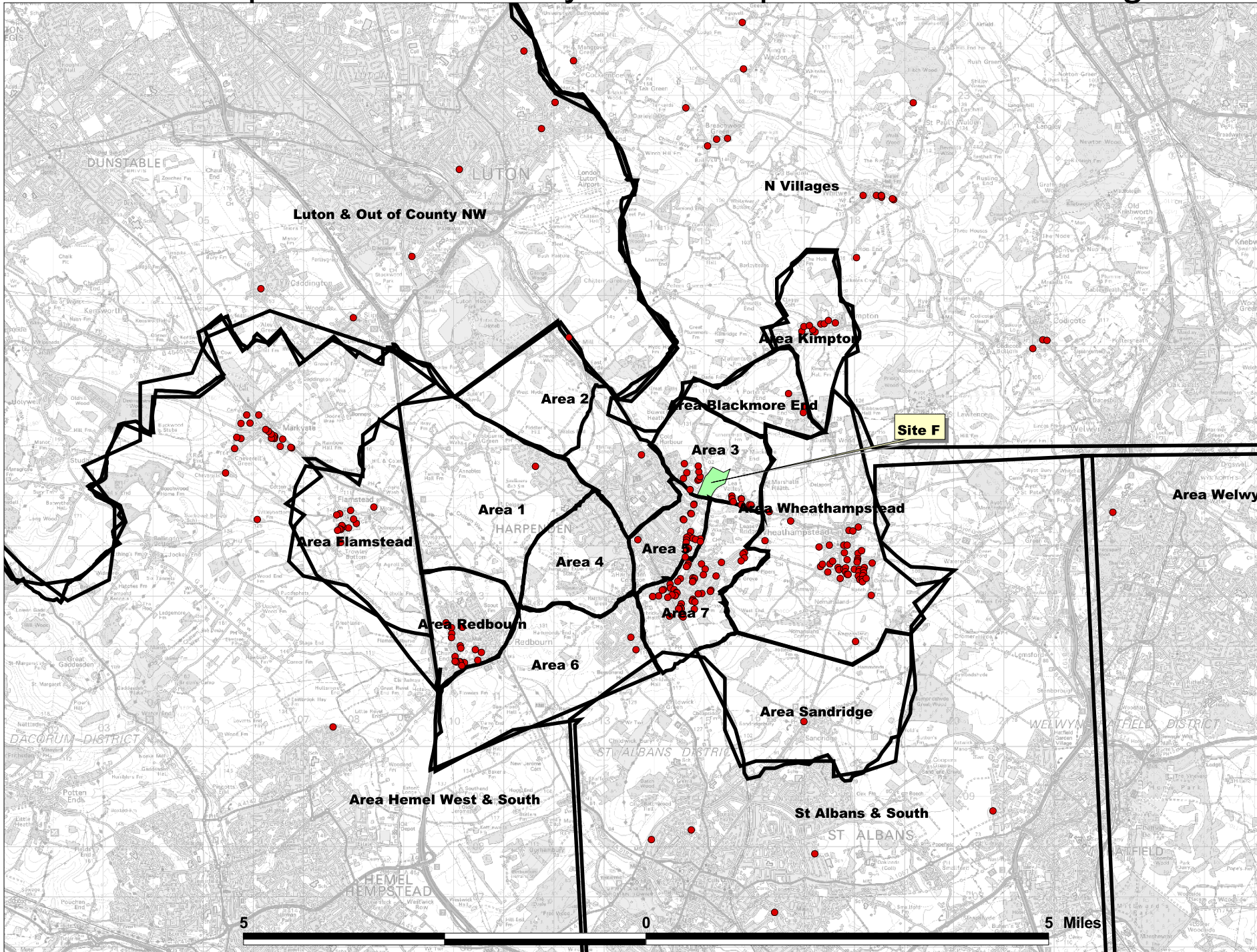
Key

- Site E pupil Locations

Site E

AREA_NAME	Yrs 7 to 11	Yr 12 Rounded	Yr 13 Rounded	Total
Area 1	5	1	1	7
Area 2	5	1	1	7
Area 3	40	6	5	51
Area 5	105	16	14	135
Area 6	15	2	2	19
Area 7	270	42	36	348
Area Blackmore End	15	2	2	19
Area Flamstead	5	1	1	7
Area Hemel West & South	50	8	7	65
Area Kimpton	45	7	6	58
Area Redbourn	245	38	33	316
Area Sandridge	5	1	1	7
Area Welwyn & East	5	1	1	7
Area Wheathampstead	215	33	29	277
Luton & Out of County NW	55	9	8	72
N Villages	90	14	12	116
St Albans & South	30	5	4	39
Grand Total	1200	187	163	1550

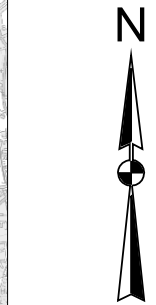
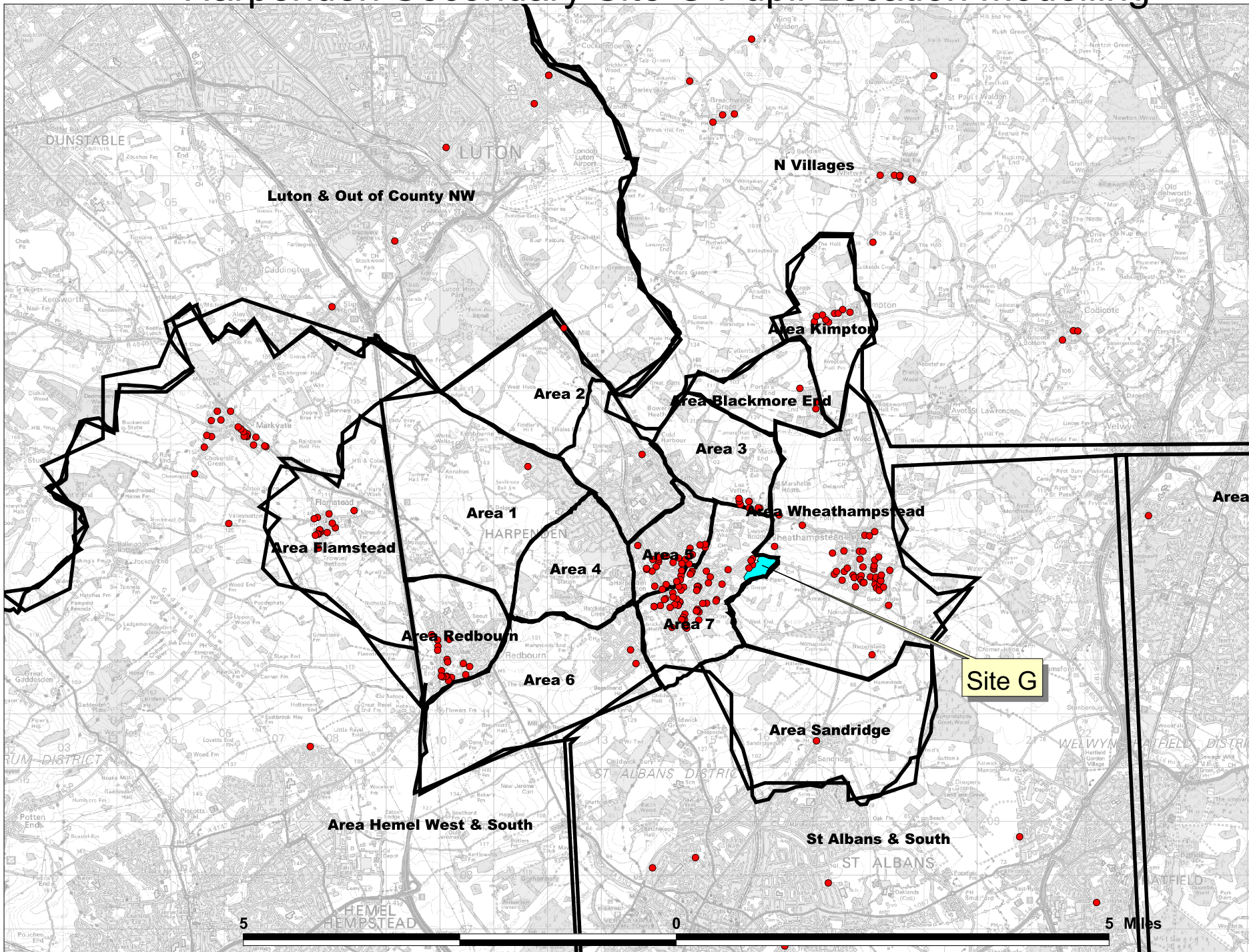
Harpenden Secondary Site F Pupil Location Modelling Appendix H(i)



Key	
●	Site F Pupil Locations

Site F				
Area Name	Yrs 7 to 11	Yr 12	Yr 13	Total
Area 1	5	1	1	7
Area 2	10	2	2	14
Area 3	90	14	12	116
Area 5	90	14	12	116
Area 6	10	2	2	14
Area 7	260	40	35	335
Area Blackmore End	15	2	2	19
Area Flamstead	70	11	10	91
Area Hemel West & South	110	17	15	142
Area Kimpton	45	7	6	58
Area Redbourn	85	13	11	109
Area Sandridge	5	1	1	7
Area Welwyn & East	5	1	1	7
Area Wheathampstead	235	37	32	304
Luton & Out of County NW	40	6	5	51
N Villages	95	15	13	123
St Albans & South	30	5	4	39
Grand Total	1200	188	164	1552

Harpenden Secondary Site G Pupil Location Modelling



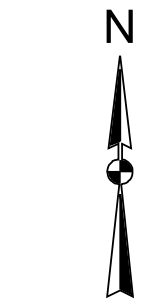
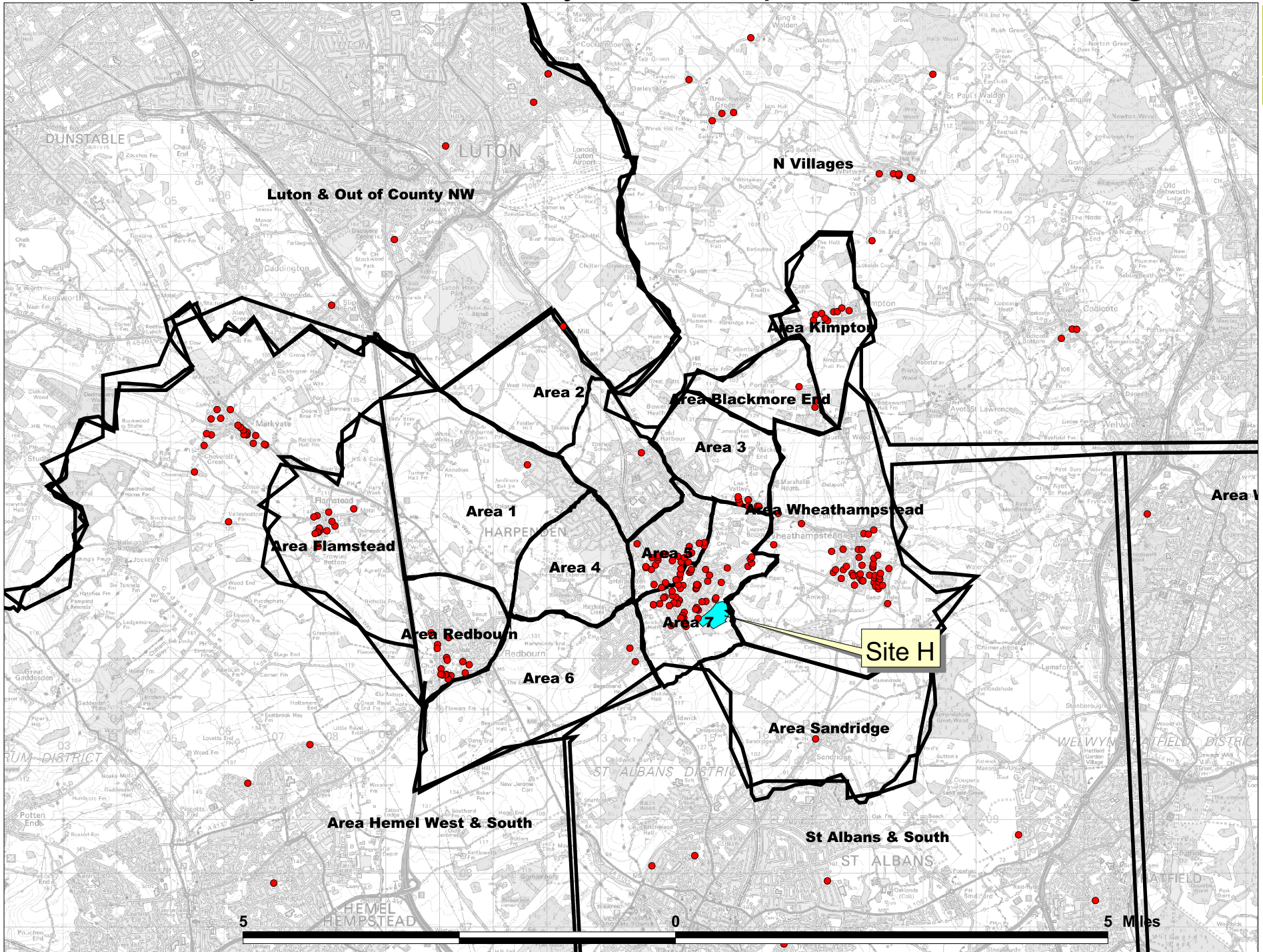
Key

- Site G Pupil Locations

Site G

AREA_NAME	Yrs 7 to 11	Yr 12 Rounded	Yr 13 Rounded	Total
Area 1	5	1	1	7
Area 2	10	2	2	14
Area 3	40	6	5	51
Area 5	135	21	18	174
Area 6	10	2	2	14
Area 7	270	42	36	348
Area Blackmore End	15	2	2	19
Area Flamstead	70	11	10	91
Area Hemel West & South	110	17	15	142
Area Kimpton	45	7	6	58
Area Redbourn	85	13	11	109
Area Sandridge	5	1	1	7
Area Welwyn & East	10	2	2	14
Area Wheathampstead	235	37	32	304
Luton & Out of County NW	30	5	4	39
N Villages	90	14	12	116
St Albans & South	35	5	4	44
Grand Total	1200	188	163	1551

Harpenden Secondary Site H Pupil Location Modelling Appendix J(i)

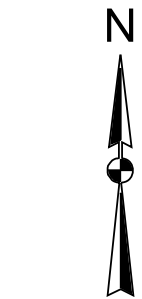
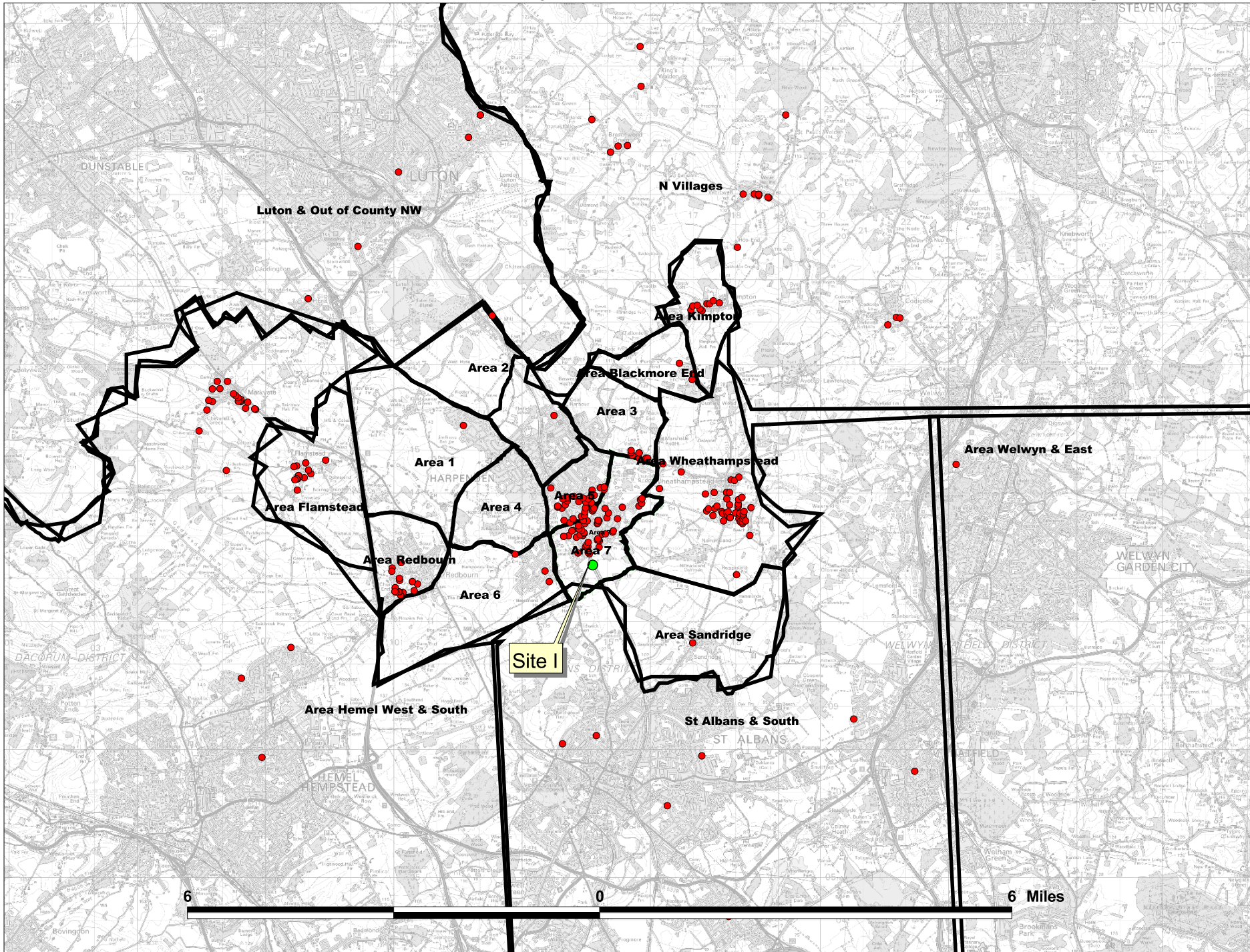


Key

- Site H Pupil Locations

Site H

AREA_NAME	Yrs 7 to 11	Yr 12 Rounded	Yr 13 Rounded	Total
Area 1	5	1	1	7
Area 2	10	2	2	14
Area 3	40	6	5	51
Area 5	135	21	18	174
Area 6	10	2	2	14
Area 7	270	42	36	348
Area Blackmore End	15	2	2	19
Area Flamstead	70	11	10	91
Area Hemel West & South	120	19	16	155
Area Kimpton	45	7	6	58
Area Redbourn	80	12	10	102
Area Sandridge	5	1	1	7
Area Welwyn & East	5	1	1	7
Area Wheathampstead	235	37	32	304
Luton & Out of County NW	30	5	4	39
N Villages	90	14	12	116
St Albans & South	35	5	4	44
Grand Total	1200	188	163	1551

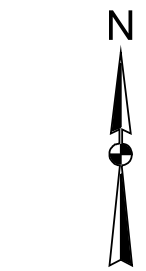
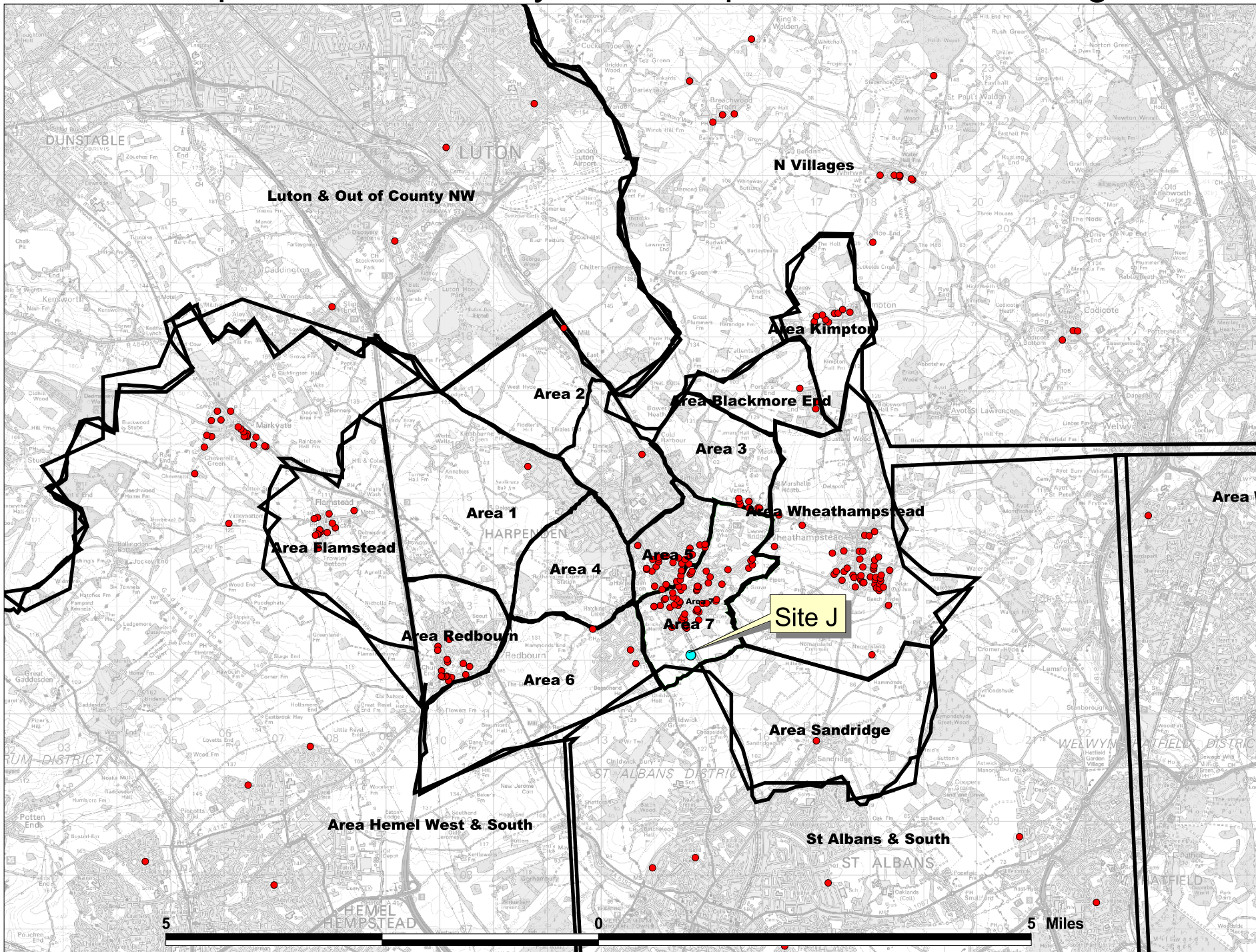


Key

- Site I Pupil Locations

Site I

AREA_NAME	Yrs 7 to 11	Yr 12 Rounded	Yr 13 Rounded	Total
Area 1	5	1	1	7
Area 2	10	2	2	14
Area 3	40	6	5	51
Area 5	135	21	18	174
Area 6	15	2	2	19
Area 7	270	42	36	348
Area Blackmore End	15	2	2	19
Area Flamstead	70	11	10	91
Area Hemel West & South	120	19	16	155
Area Kimpton	45	7	6	58
Area Redbourn	75	12	10	97
Area Sandridge	5	1	1	7
Area Welwyn & East	5	1	1	7
Area Wheathampstead	235	37	32	304
Luton & Out of County NW	30	5	4	39
N Villages	90	14	12	116
St Albans & South	35	5	4	44
Grand Total	1200	188	162	1550



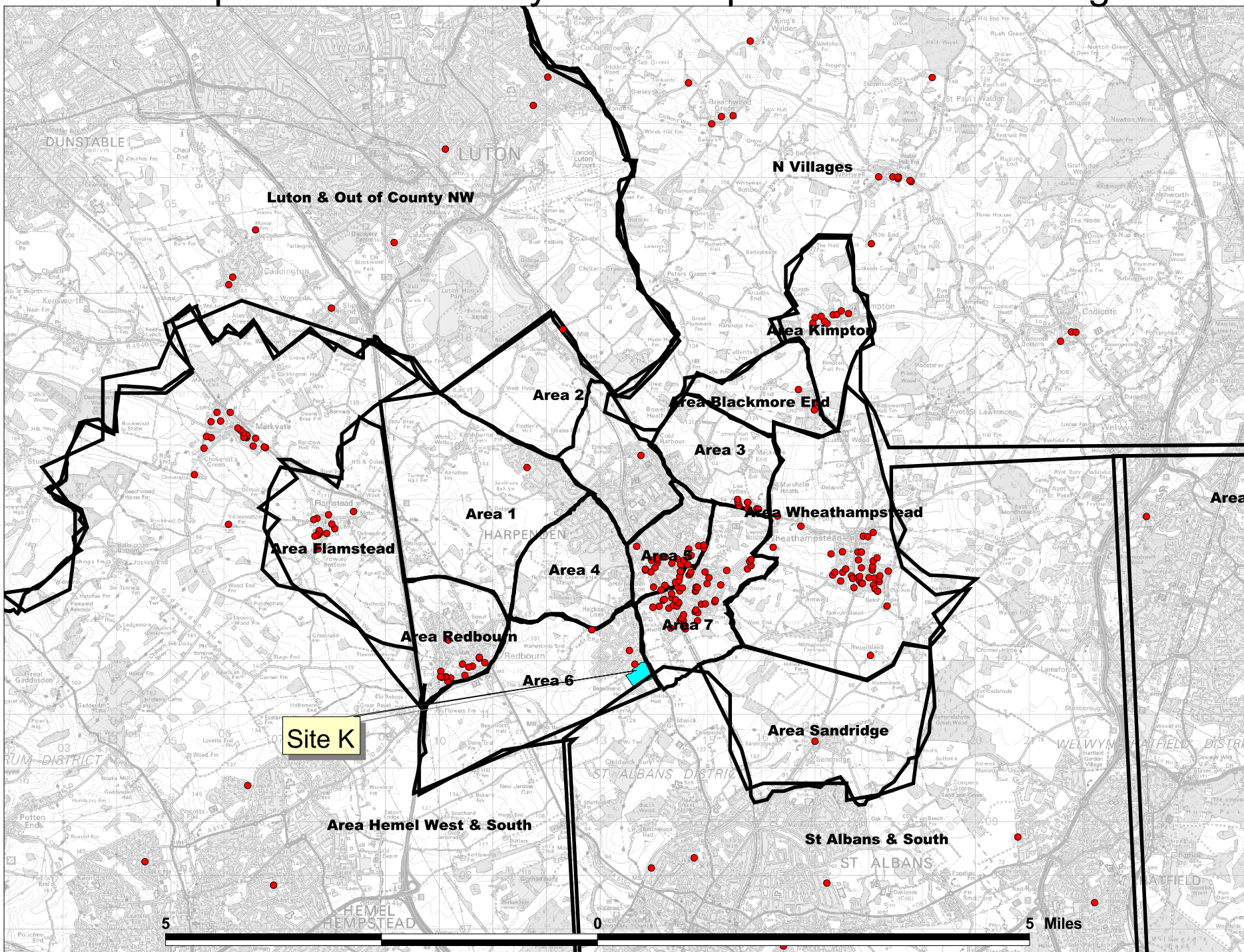
Key

- Site J Pupil Locations

Site J

AREA_NAME	Yrs 7 to 11	Yr 12 Rounded	Yr 13 Rounded	Total
Area 1	5	1	1	7
Area 2	10	2	2	14
Area 3	40	6	5	51
Area 5	135	21	18	174
Area 6	15	2	2	19
Area 7	270	42	36	348
Area Blackmore End	15	2	2	19
Area Flamstead	70	11	10	91
Area Hemel West & South	130	20	17	167
Area Kimpton	45	7	6	58
Area Redbourn	75	12	10	97
Area Sandridge	5	1	1	7
Area Welwyn & East	5	1	1	7
Area Wheathampstead	235	37	32	304
Luton & Out of County NW	20	3	3	26
N Villages	90	14	12	116
St Albans & South	35	5	4	44
Grand Total	1200	187	162	1549

Harpenden Secondary Site K Pupil Location Modelling



Key

- Site K Pupil Locations

Site K

AREA_NAME	Yrs 7 to 11	Yr 12 Rounded	Yr 13 Rounded	Total
Area 1	5	1	1	7
Area 2	10	2	2	14
Area 3	40	6	5	51
Area 5	135	21	18	174
Area 6	15	2	2	19
Area 7	270	42	36	348
Area Blackmore End	15	2	2	19
Area Flamstead	70	11	10	91
Area Hemel West & South	130	20	17	167
Area Kimpton	45	7	6	58
Area Redbourn	75	12	10	97
Area Sandridge	5	1	1	7
Area Welwyn & East	5	1	1	7
Area Wheathampstead	215	33	29	277
Luton & Out of County NW	40	6	5	51
N Villages	90	14	12	116
St Albans & South	35	5	4	44
Grand Total	1200	186	161	1547